MARCH 1992

IBM AREA 2 NORTHEASTERN REGIONAL STUDY

COMPETITIVE PROFILES

Prepared
for
IBM Corporation

INPUT®

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XIV

Competitive Profiles

ANDERSEN CONSULTING
69 West Washington Street
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George T. Shaheen, Managing Partner
Total Consultants: 21,668
Total Personnel: 25,100
Total Net Revenue, Fiscal Year End
8/31/91 $2.26 billion

The Company

Andersen Consulting offers management and technology consulting to clients in nearly every business and governmental sector. The organization helps clients use information technology competitively in all phases of their management activities--strategic, operations, and financial.

- Andersen Consulting believes it can ultimately help its clients "reengineer" or rethink the way they do business--a process, the firm claims, that can lead to business integration, or the integration of technology, strategy, operations, and people.

- Since 1989 Andersen Consulting has operated as a separate business unit from tax/audit firm Arthur Andersen, with its own operations and managing partner.

Andersen Consulting offers its services through the following service lines:

- Systems Management, including operations and network services, facilities management, applications management, and backup/recovery services

- Systems Integration, including systems design, building, integration, and implementation

- Strategic Services, including competitive and market strategy, organization and change strategy, business operations strategy, and information and technology strategy

- Change Management Services[sm], including organization change, technology assimilation, knowledge transfer, and quality management

Andersen Consulting also offers manufacturing and logistics applications software products and FOUNDATION, a computer-aided software engineering (CASE) toolset.

Andersen Consulting's services and products are offered through six major industry practices (the classifications are not specialties, but serve to organize Andersen Consulting's varied industry work). Each of the following practices is headed by a managing partner and staffed with consulting specialists who have developed industry-specific expertise:

- Financial Services (Financial Markets, Insurance, Retail Financial Services)
- Government
- Healthcare
- Products (Aerospace and Defense, Airlines, Discrete/Repetitive Manufacturing, Energy, Food/Consumer Packaged Goods, General Retail and Wholesale Distribution, and Process Manufacturing)
- Telecom Industry Group
- Utilities

Andersen Consulting currently serves clients through 151 offices in 46 countries. The organization includes more than 21,000 consultants worldwide. The company's current organizational structure is shown in Exhibits A and B.

Andersen Consulting's fiscal 1991 revenue reached $2.26 billion, a 20% increase over fiscal 1990 revenue of $1.88 billion. A five-year revenue summary follows:

ANDERSEN CONSULTING
FIVE-YEAR REVENUE SUMMARY
($ millions)

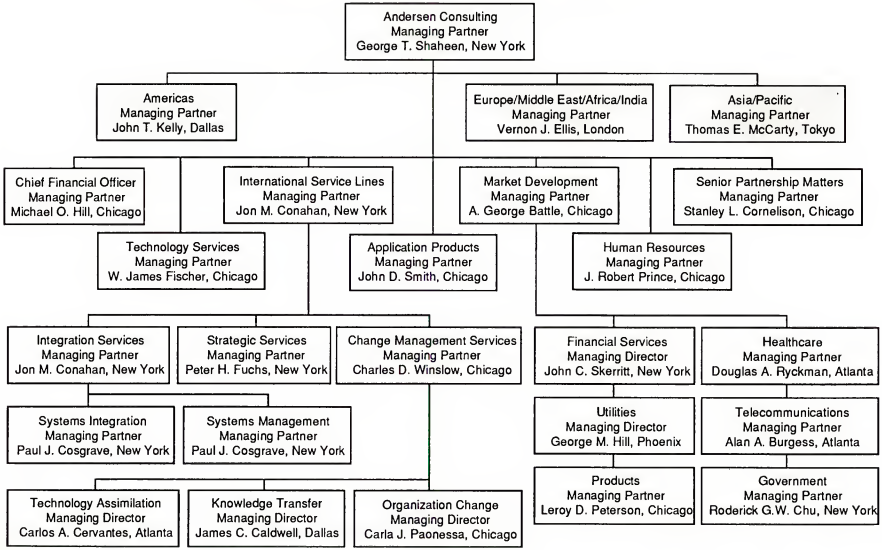
	FISCAL YEAR					
ITEM	8/91	8/90	8/89	8/88	8/87	CAGR
Revenue	$2,256.3	$1,875.5	$1,443.0	$1,112.0	$838.4	28%
· Percent increase from previous year	20%	30%	30%	32%	32%	

Fiscal 1991 revenue growth was attributed to the following:

- The organization's Europe/Middle East/Africa/India region showed the strongest growth in U.S. dollars (37%), followed by Asia/Pacific (25%), and the Americas (10%).

EXHIBIT A

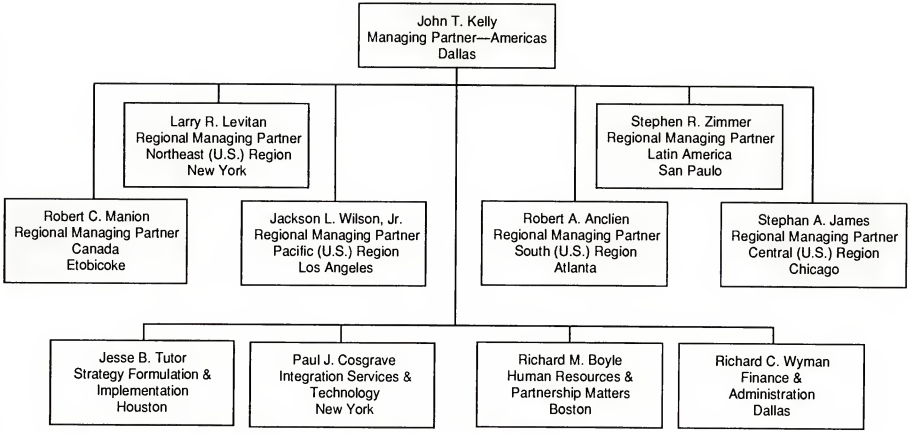
Andersen Consulting Organizational Structure*



*Shaded boxes indicate line operations. All others are classified under worldwide management.

EXHIBIT B

Andersen Consulting Americas Operations*



*Shaded boxes indicate line operations. All others are classified under worldwide management.

- Growth in Europe comes from a strong base of work in Western Europe with clients such as Thames Water, the 1992 Winter Olympics, and the U.K. Department of Social Security.

- The organization also continues to make inroads in Eastern Europe. In the past year, Andersen Consulting has advised the Soviet Union on the distribution of bread in Moscow, announced a large contract with FSM (a major Polish automobile company), and helped implement a cellular telephone infrastructure for Hungary, among other initiatives in that region.

- The Americas, Andersen Consulting's most mature market, continues to feel the effects of a recession that has affected other markets.

- Andersen Consulting believes it has succeeded in Asia/Pacific because it varied its activities by industry and service lines. When a recession hit Australia, business was unhurt because of a variety of work across the region.

· Of Andersen Consulting's six major industry practices, Healthcare showed the strongest growth over fiscal 1990 (45%). Growth rates for the organization's other industry practices were as follows: Utilities, 34%; Government, 32%; Telecom Industry Group, 22%; Financial Services, 21%; and Products, 16%.

Alliances

Andersen Consulting has various alliances and marketing agreements with various vendors that complement the firm's strategy of providing the services and products that best meet the needs of its clients.

Examples of alliances announced by Andersen Consulting include the following:

· In 1991, Andersen Consulting allied with Microsoft to provide services to clients in developing client/server applications.

· In 1990 Andersen agreed with Xerox to provide its clients with products from the new Xerox DocuTech Publishing Series.

· In late 1989, the organization became a remarketer of Sun Microsystems' entire line of computers and software.

Andersen's Business Integration Partnership (BIP) program establishes and manages alliances with companies in order to combine systems and specialized services. Current partners under

the BIP program include Amdahl, Apple, AT&T/NCR, BBN Software Products, Compaq, Dell Computer, Digital Communications Associates, DEC, FileNet, Foxboro, Grid Systems, Groupe Bull, Hewlett-Packard, IBM, Infonet, Informix, Microsoft, Norand, Novell, Palette Systems, Plexus, Pyramid, Sun, Sybase, Symbol, SynOptics Communications, Systems Center, Tandem, and Toshiba.

Research and Development

Andersen Consulting has a strong commitment to research and development, through formal organizations such as Technology Services, and through projects and facilities sponsored by local offices and other internal groups.

- In addition, service, products, and support facilities are sources of leading-edge ideas about products and the application of technology with clients.

- Despite recessionary conditions, in fiscal 1991 Andersen Consulting increased its research and development investment to approximately $264 million, up from $238 million the year before.

Technology Services is responsible for technology visioning and knowledge transfer. One of the group's primary responsibilities is developing emerging technologies for clients. Those technologies include artificial intelligence, image processing, telecommunications, and object-oriented development. This unit also establishes standard practices, develops practice methodologies, practice aids, and the FOUNDATION development tool. The group is organized as follows:

- Advanced Technology Group develops and disseminates technical specialty skills and provides direct support to local offices for client engagements. The group is organized into divisions, each of which specializes in a particular technology: New Age Systems (alternative architectures, workstation technology), Digital Equipment Corporation and AS/400, Knowledge-Based Systems Technology, Enterprising Systems, and Imaging.

- Network Solutions participates in client engagements or projects in telecommunications and network computing and provides training and worldwide support to the consulting practice. This unit is further discussed later in this profile.

- CSTaR (Center for Strategic Technology Research) seeks to identify technologies and techniques solving particular classes of business problems.
  - CSTaR consists of three areas of research: human systems integration, decision technology, and software engineering.
  - Additionally, CSTaR is Andersen Consulting's liaison with Northwestern University's Institute for Learning Sciences and Microelectronics and Computer Technology Corp., a cooperative research venture involving 49 North American companies.
  - Research projects currently taking place in CSTaR include development of groupware and knowledge-based software engineering.
- FOUNDATION Development Group provides full-function CASE technology and associated services to the marketplace and consulting practice.
- The Advanced Development Group assists Andersen Consulting professionals in their use of new technology. Current programs include enhancing Andersen Consulting's capabilities with information engineering techniques, creating a new methodology for custom systems design and installation, and incorporating workstation and object-oriented technology into the practice.
- Knowledge Transfer supports Andersen Consulting by providing knowledge transfer and training in key technical, functional, and industry areas.

Andersen Consulting's Business Integration Centers are working environments that demonstrate how technology, when integrated with a business vision and management sense, can change the way business is done.

- The centers are used primarily for research and development, training client and internal personnel, and demonstrating technology solutions from Andersen Consulting and participating vendors of hardware and software.
- Business Integration Centers are as follows:
  - Atlanta: LOGISTICS 2000 is a working model of a company using advanced technology to integrate sales and customer service, inventory, warehouse, transportation, and strategic planning.

- Chicago: SMART STORE 2000 is Andersen's vision of how technology will be applied at food retailers and addresses food industry management concerns about the future. The center incorporates hardware and software from more than 20 participating vendors.

- Dallas Infomart: Hospital of the Future is a model that serves as a permanent site for Andersen Consulting and more than 20 participating vendors. Andersen Consulting Engineering Systems (ACES) is a model of an engineering control system that supports companywide product development cycles. AC - the Retail Place is a fully operational model of a retail store. The Factory is a display of computer-integrated manufacturing and distribution technology. GeoPlus focuses on geoprocessing information systems.

- Sao Paulo: The CIM Process Center applies technology to the process manufacturing industry, including process control networks, computer-aided plant design, and robotic bottling.

Training

Andersen Consulting invested $157 million ($7,200 per consultant) on training during fiscal 1991.

Through the Professional Education Division, more than 250 courses are available to each Andersen Consulting consultant. By the time a consultant reaches the associate partner level, he or she will have put in more than 1,000 hours of training.

- The St. Charles (IL) Center for Professional Education is the organization's hub for internal training that has 120 classrooms accommodating more than 2,000 participants.

- Other worldwide training locations include Manila, Philippines, Singapore, and Veldhoven (the Netherlands).

Key Products and Services

INPUT estimates that approximately 65% of Andersen Consulting's fiscal 1991 revenue was derived from systems integration, 30% from professional services, 4% from applications software products, and 1% from systems software products.

Andersen Consulting's areas of expertise include the following:

- *Systems Integration:*

  - Systems planning
  - Systems design

- Systems building
- Systems implementation

· *Systems Management*:

- Operations and network services
- Facilities management (systems operations)
- Applications management
- Backup/recovery services

· *Strategic Services*:

- Competitive and market strategy
- Organization and change strategy
- Business operations strategy
- Information and technology strategy

· *Change Management Services:* This practice answers business needs related to all aspects of implementing and managing organizational change. Using a practice methodology that encompasses planning, designing, implementing, and maintaining the changes made, each of three integrated service lines addresses the essential ingredients of change:

- The organization (Organization Change)
- The individual (Knowledge Transfer)
- Use of technology (Technology Assimilation)

Systems Integration:

Through the Systems Integration practice, Andersen Consulting plans, designs, and puts together complex computer systems, and then integrates them into a client's operations. These projects may require the design and installation of systems using custom-designed software, expertise in project management, and change management computer-based training. Projects may be partially managed at the client site, supplemented by Andersen's advanced technology centers.

Contract examples include the following:

· Andersen Consulting is a systems integrator in an effort to develop an optical document image processing system for the Ontario (Canada) Ministry of Consumer and Commercial Relations. The system will capture the province's 10 million statistical records.

- Andersen Consulting helped Northwest Airlines integrate artificial intelligence, image processing, workstations, and other technologies to create a system that helps Northwest more accurately track passenger revenue and collect marketing information about customers' travel and spending patterns.

- For the 1992 Winter Olympics, Andersen Consulting has integrated the computer systems that will administer operations, results reporting, ticket selling, lodging, accreditation, and other functions.

- Andersen Consulting is one of three firms participating in the installation of a new accounting system for the state of Texas. Andersen will develop an executive information system decision support tool for the system.

- An integrated financial and administrative system is currently being developed for the U.S. Social Security Administration. The project is expected to be complete some time in 1993, having lasted 60 months at a cost of $12 million.

- The Paris Bourse, the fourth largest stock exchange in the world, is carrying out a project to modernize its clearing and settlement procedures. Andersen Consulting's contract includes the interconnection of 300 banks and 50 brokers with the capacity to handle 600,000 transactions every day.

- Andersen Consulting was hired by the Swiss Options and Financial Futures Exchange (SOFFEX) to plan and implement the SOFFEX exchange from scratch. Andersen Consulting was engaged as the prime contractor to open a Swiss options and futures exchange, develop/install an electronic trading and clearing system to link directly with member back offices, and manage other areas necessary to open the exchange.

Systems Management:

Systems Management encompasses operations and network services, facilities management, applications management, software reengineering and renewal, and backup and recovery. Systems Management takes care of the daily needs of a client's systems so that the client can focus on its business. This service line is responsible for outsourcing deals in which a client turns over part or all of its data processing operations to Andersen Consulting.

Work in this practice area includes the following agreements:

- A $200 million, 10-year agreement with Sun Refining & Marketing Co., under which Andersen Consulting acquired Sun R&M's Dallas Computer Center, hired its employees, and assumed management of all Dallas Computer Center's operations. (Contract signed October 1990).

- A $50 million agreement with Voluntary Hospitals of America Inc. to install and manage a computer system that provides physicians and management at VHA member hospitals with comparative information on the cost and quality of patient care--even if their billing systems are different. (Contract signed fall 1990).

- Under a three-year, $10 million contract, Andersen Consulting is managing the Medical Data Center of the Milwaukee County Medical Complex. Andersen is responsible for computer operations, applications maintenance, technical support, and applications development. (Contract awarded in September 1991).

- Under a five-year, $89 million systems management contract, Andersen Consulting has assumed all of British Petroleum Exploration Europe's (BPX) financial accounting services. In addition, BPX's 250 accounting services staff have been offered positions with Andersen Consulting and will be located in Aberdeen (Scotland).

- In January 1990, Andersen Consulting agreed to provide IBM SNA network support, systems software maintenance, and technical support for Dial Corp.'s applications programming staff. As part of this $10 million, five-year deal, Andersen Consulting agreed to manage Dial's data center in Phoenix and migrate operations to its Dallas systems operations center.

This service line is supported by large processing centers (called systems management centers) in cases where it makes sense to perform systems operations away from the client site.

- Systems management centers are large, mainframe computer facilities staffed with systems specialists for use in some situations where a client has turned over part or all of its computer operations to Andersen Consulting.

Strategic Services:

Strategic Services helps clients develop market-driven strategies and align their business processes with those strategies in order to deliver value to customers.

Examples of work performed by the practice include the following:

- Competitive/market strategy: For a manufacturer of outdoor power equipment, Andersen Consulting developed and implemented a customer-driven strategic marketing plan and consumer strategy for the 1990s.

- Organization and change strategy: Andersen Consulting helped a public transportation system make the transition from state administration to local control. Andersen planned the transition and designed a new organization.

- Business operations strategy: For a multibillion dollar business unit of a major process manufacturer, Andersen Consulting streamlined the supply chain to simplify and speed the flow of products from manufacturer to distributor.

- Information and technology strategy: For a newly merged food products company, Andersen Consulting developed a strategy for integrating operations and information technology of the two previously separate businesses.

Change Management Services:

The Change Management Services practice helps organizations manage all elements of change.

- The philosophy behind change management is that the successful use of new technology depends on an organization's ability to properly position, educate, and motivate its people to employ it.

- Using methodologies and frameworks for planning, designing, implementing, and maintaining change, Andersen Consulting seeks to help organizations develop well-organized, well-informed, highly skilled, and highly motivated people at all levels.

Client examples include the following:

- Andersen Consulting planned, designed, and developed technology-based training for the U.K. Department of Social Security in support of its migration from a pencil-and-paper operation to an automated networked environment.

- Andersen Consulting helped the Standard Chartered Bank of Hong Kong to revamp the bank's transactions systems throughout Asia. Andersen developed computer-based training for more than 3,000 employees to offer simulated practice and

testing of more than 70 bank functions affected by the new system.

Services Support:

Andersen Consulting's services are supported through two types of facilities--sytems management centers amd advanced technology centers--and network management services.

Systems management centers (previously discussed) are large, mainframe computer facilities that support systems operations services.

Advanced technology centers (ATCs) are staffed with technology specialists, workstations, and computer networks to provide client support, marketing support, and research and development. The skills and knowledge of specialists at ATCs can be shared on multiple client projects, as opposed to having resources tied to one long-term engagement.

Andersen Consulting's Network Solutions practice provides a range of network integration and network management consulting services to support the organization's systems integration and systems management activities.

- Network Solutions works with the Systems Management practice to identify potential outsourcing opportunities, orchestrate outsourcing arrangements, support client network migrations, and identify new network environments to better meet clients' changing information technology requirements.

- AANet is Andersen Consulting's primary telecommunications vehicle for meeting its information needs. In addition, AANet is available to support network outsourcing services. The network spans North America and provides coverage to Europe as well as select regions of Asia.

- In addition, Andersen Consulting has formed alliances with INFONET Services Corp. and SigmaNet to penetrate areas AANet does not access.

- Andersen Consulting continues to develop its network services capabilities, reflecting the organization's commitment to the network outsourcing market.

Applications Software Products:

DCS/Logistics is an on-line, integrated system that supports the customer service, distribution, and logistics management functions of medium-to-large manufacturing and distribution organizations.

- DCS/Logistics for the IBM System 370 has 14 application modules. DCS/Logistics for the VAX has nine modules.

- There are currently more than 175 DCS/Logistics installations.

MAC-PAC is an integrated, on-line distribution and manufacturing system that allows manufacturers to share information throughout their entire organization. The entire flow of information can be defined and managed--from customer order to manufacturing, raw material purchase, and distribution.

- MAC-PAC runs on IBM and compatible mainframes under DOS, MVS.

- There are currently more than 120 MAC-PAC installations.

MAC-PAC/D is a specialized, fully integrated manufacturing enterprise management system for aerospace and defense contractors and other project-oriented manufacturers.

- The MAC-PAC/D family of products includes: MAC-PAC/D (manufacturing), IPD (engineering), PROCUREMENT/D (procurement), FACTORY MANAGEMENT/D (shop floor), and FINANCE/D (cost and financial).

- The products run on IBM and DEC mainframes. FACTORY MANAGEMENT/D also runs on DEC VMS and Hewlett-Packard open architecture platforms.

- There are currently 75 MAC-PAC/D installations.

MAC-PAC for the IBM AS/400 is a fully integrated, on-line manufacturing, distribution, and financial system that operates in a single or multiplant environment.

- The system supports discrete, just-in-time/repetitive, make-to-order, job shop, or a combination of these manufacturing environments. Multilanguage and multicurrency features are also included.

- There are currently more than 600 installations.

PROCESS/1, introduced in 1991, is a fully integrated product for process industry manufacturers. The PROCESS/1 client/server architecture supports multinational operations and provides features such as multicurrency, multilanguage, and unit-of-measure conversion. PROCESS/1 is available for DEC VAX, VMS systems.

Andersen Consulting's Software Intelligence Group is responsible for gathering, evaluating, and disseminating information on applications software products and vendors; working closely with software vendors to enhance their existing products; informing firm personnel of new applications software products, enhancements to existing products, and software industry trends; helping clients benefit from the most current knowledge and most recent hands-on experiences of firm personnel who have worked with packaged software products; supporting firm professionals on client projects; and developing methodologies and tools to help ensure successful implementation of applications software-based systems.

- The group has implemented a number of relationships with software products companies through the OASIS program. This program provides Andersen Consulting with in-depth knowledge of the products of key software companies such as Dun & Bradstreet Software Services, SAP, Quality Software Products, PeopleSoft, and Lawson Associates. Andersen Consulting works on major projects implementing those companies' software products.

Computer-Aided Software Engineering Tools:

FOUNDATION is a CASE tool set for information systems development, including analysis, design, and programming. FOUNDATION allows integrated application development and execution on multiple hardware platforms and operating systems.

- FOUNDATION's components include the following:

  - METHOD/1 is a LAN-based automated methodology that provides a systems development framework--from information planning to production systems support. The methodology provides support and guidance for several different development options. The project management component, MANAGE/1, includes work plan generation, project estimating, and quality assurance. METHOD/1 is integrated with DESIGN/1 and PLAN/1 and is accessible on-line. As of early fiscal 1992 there were 715 METHOD/1 installations.

  - DESIGN/1 is a LAN-based set of analysis and design tools available in a number of environments. DESIGN/1

automates systems design tasks and techniques to improve productivity and design quality. Analysts and designers use DESIGN/1 to develop data flow diagrams, paint screens and reports, and perform conversational prototyping. The product is mouse-driven, provides an easily followed menu-driven structure, and facilitates the sharing of design data. DESIGN/1 supports the activities of METHOD/1 and can be customized to support other methodologies. As of early fiscal 1992, there were 915 DESIGN/1 installations.

- INSTALL/1 is a development environment and application generator for DEC, IBM, and Bull. INSTALL/1 provides portability and reuse across multiple platforms because INSTALL/1-generated applications do not contain platform-specific logic. INSTALL/1 also provides support for workstation-based generation and unit testing of on-line and batch applications, and a mainframe execution environment and services to support the development of batch applications. As of early fiscal 1992, there were 115 installations of INSTALL/1.

- PLAN/1 is an automated LAN-based tool set for information planning and engineering. PLAN/1 helps information systems professionals incorporate business strategies for planning systems development projects. Components include an information model, data model facility, decomposition diagram facility, data flow diagram facility, and matrix facility. As of early fiscal 1992 there were 25 installations.

- FOUNDATION for Cooperative Processing is an OS/2-based set of tools for developing peer-to-peer, client/server applications and distributed application processing, not just a frontware to existing applications. FOUNDATION for Cooperative Processing increases productivity through reuse of system components and facilitates maintenance by generating applications from a shared repository. Released in fiscal 1992, the product supports OS/2 Presentation Manager clients and LAN and MVS/CICS server environments. Expanded availability will occur throughout 1992. As of early fiscal 1992 there were 20 installations.

Designware for FOUNDATION is a cross between packaged software and custom-developed systems applications that provides a jump start on application development. Designware offerings include:

- CUSTOMER/1, a customer information model for the utilities industry

- WORK/1, work order management designware for the utilities industry
- INVEST/1, for institutional investors creating securities accounting and management systems
- LIFE/1, a suite of products, including planware (software for information planning) and designware, that supports the policy administration needs of life insurance companies

In order to get clients involved in software research and development, Andersen Consulting also operates ASSIST, a user's group of its applications software and development tools. ASSIST membership is open to any licensed user of Andersen Consulting software products worldwide.

Industry Markets

A two-year summary of revenue by industry market, as provided by Andersen Consulting, follows:

ANDERSEN CONSULTING
TWO-YEAR SOURCE OF REVENUE SUMMARY
($ millions)

	FISCAL YEAR			
	8/91		8/90	
	REVENUE $	PERCENT OF TOTAL	REVENUE $	PERCENT OF TOTAL
Products (a)	$971.0	43%	$834.5	44%
Financial services (b)	588.6	26%	486.1	26%
Government	283.2	12%	215.4	11%
Utilities	154.6	7%	115.3	6%
Telecom Industry Group	128.4	6%	105.7	6%
Health care	68.0	3%	47.0	3%
Other	62.5	3%	71.5	4%
TOTAL	**$2,256.3**	**100%**	**$1,875.5**	**100%**

(a) Includes aerospace and defense, airlines, discrete/repetitive manufacturing, energy, food/consumer packaged goods, general retail, and wholesale distribution.

(b) Includes retail financial services, financial markets, and insurance.

Geographic Markets

Approximately 48% of Andersen Consulting's fiscal 1991 revenue was derived from the U.S. and the remainder from international sources. A two-year summary of source of revenue follows:

ANDERSEN CONSULTING
TWO-YEAR GEOGRAPHIC SOURCE OF REVENUE SUMMARY
($ millions)

	FISCAL YEAR			
	8/91		8/90	
ITEM	REVENUE $	PERCENT OF TOTAL*	REVENUE $	PERCENT OF TOTAL*
Americas				
- U.S.	$1,089.2	48%	$999.3	53%
- Canada	52.3	2%	41.9	2%
- South America	46.0	2%	43.8	2%
- Mexico	5.6	--	2.9	--
	$1,193.1	52%	$1,087.9	57%
Europe/Middle East/ Africa/India	907.5	40%	662.8	35%
Asia/Pacific	155.7	7%	124.8	7%
TOTAL	**$2,256.3**	**100%**	**$1,875.5**	**100%**

* *Note: Does not add to 100% due to rounding.*

Andersen Consulting has 151 offices in 46 countries, including 75 offices in the Americas, 58 offices in Europe/Middle East/Africa/India, and 18 offices in Asia/Pacific.

Andersen Consulting's European operations were significantly expanded during 1989 with the acquisitions of Rossmore Warwick (U.K.), Computer Management Associates (Norway), and CMC Consultores (Spain).

COMPANY PROFILE

Andersen Consulting

1. Key Contacts

George Shaheen
Managing Partner
Andersen Consulting
69 West Washington Street
Chicago, IL 60602

2. Description of Principal Business

Andersen Consulting provides technology consulting services to clients in nearly every business and government sector. Andersen helps clients use information competitively in all phases of their management activity—strategic, operations, and financial. In September 1989 Andersen Consulting assumed the operations, activities, and personnel of the former Management Information Consulting practice of Arthur Andersen & Co., which provides accounting, audit, and tax services.

Andersen Consulting is a separate legal entity not involved in accounting or tax work. None of the partners in Arthur Andersen is an active partner in Andersen Consulting or vice versa. Both Andersen Consulting and Arthur Andersen are member firms of the Arthur Andersen Worldwide Organization (Lawrence A. Weinbach, managing partner—chief executive). An accurate description of the Arthur Andersen Worldwide Organization is "a global professional services firm."

A breakdown of Andersen Consulting's services is as follows:

- General management consulting
- Information systems consulting
- Packaged applications software
- Computer-aided software engineering products
- Integrated solutions to business needs
- Organizational change management services

Andersen Consulting has offered management consulting services since 1948 and information services-related consulting since the early 1950s. Andersen Consulting derived $1.4 billion of revenue from consulting services in fiscal year 1989.

Of the total revenue stream attributed to Andersen Consulting, approximately 30% can be attributed to pure professional services contracts, 65% from systems integration, and the remaining 5% to applications and systems software products. INPUT's estimate of the detailed breakout is contained in Exhibit AC-1.

EXHIBIT AC-1

Key Parameters Of Andersen Consulting's Consulting/SI Business

Parameter	U.S.	Total
IS practice revenues[1]	$800 M	$1,443 M
IS practice personnel	11,000	18,000
Systems integration revenues[1]	$560 M	Unknown
Systems integration practice personnel [2]	7,150	Unknown

1 Fiscal year August 31, 1988 to August 31, 1989.
2 Calculated by INPUT.

Andersen Consulting has been one of the most phenomenal knowledge-related businesses of the last 20 years. Revered at one moment by its competitors in the information services marketplace, and not taken seriously at others, the consulting operation has consistently shown significant growth rates and defeated the competition on a regular basis. Its commitment to the information services market has resulted in significant developments over the past several years.

In the 1986-1987 time period, a number of Arthur Andersen & Co. senior consulting partners approached Duane Kulberg, AA's former CEO, to lobby for a change in the structure of the firm that would facilitate the growth of the consulting side of the business. They argued that the traditional "partnership" structure with practice office accountability was inappropriate to a business with an increasing national and international focus. The result was the organizational change that created Andersen Consulting.

In 1987, the consulting partners in local offices began to report through a parallel line of management of regional and national consulting partners. At a national level, the consulting practice still reported to the Arthur Andersen practice head in that country—more often than not, with a background of audit. At the same time, a strengthened dotted-line

relationship was created between the country consulting heads (or regional consulting heads in the U.S.) and the Consulting Managing Partner in Chicago. This move strengthened the consulting practice significantly.

3. Andersen Consulting Competitive Position

Andersen's estimated $880 million revenue in IS consulting makes it the leader among accounting/auditing/consulting firms in this segment.

Andersen Consulting's strengths include contacts at the vice-presidential or presidential level at customer companies. In fact, each IS partner is expected to be able to contact senior officers at their top accounts. In addition, Andersen Consulting offers extensive in-house staff training and has a strong services-oriented culture. AC has developed a variety of strong third-party hardware and software vendor relationships to support it in its information services consulting business.

INPUT does not believe that AC has any significant weaknesses. However, some problems do exist. First, AC's partnership culture has traditionally worked against change. However, recent developments within the organization are likely to minimize the effect of this problem. Second, AC's approach to systems integration has been heavily business-process-oriented. Top down in nature, the approach is not suitable for every client. Finally, AC's strengths in the international component of the IS/SI market have significantly lagged behind the U.S. operation's. However, AC is rapidly building these capabilities. Exhibit AC-2 summarizes INPUT's assessment of competitive strengths and weaknesses as they apply to the systems integration business.

EXHIBIT AC-2

Andersen Consulting's Competitive Status

SI Strengths	SI Weaknesses
High-level client contacts	Partnership culture
In-house training capability	Process orientation
"Professional services culture"	Foreign SI capabilities
Strong third-party relationships	

4. Markets Served

Andersen Consulting's systems integration business focuses almost exclusively on vertical markets, but in effect covers almost all of the commercial and government sectors, including:

- State and local government
- Manufacturing
- Wholesale and retail distribution
- Financial services
- Health care
- Insurance
- Utilities
- Process manufacturing
- Transportation
- Telecommunications
- Energy and gas
- Federal government

Although AC has clearly demonstrated capability in all the markets listed, from a historical perspective INPUT believes that AC's primary focus in these vertical industries in order of importance has been: manufacturing, distribution, state and local government, financial services, and telecommunications.

Furthermore, although many competitors consider Andersen Consulting "invisible" in the federal SI marketplace, AC has recently placed significant emphasis on developing business in that arena. Most likely, the "invisibility" is more a function of the types of systems it does—primarily administrative as opposed to the more-publicized defense contracts.

5. Recent Events

A number of significant events have impacted Andersen Consulting's position in the SI market over the past three years.

- AC has placed significant emphasis on the development of alliances in the software community, including: UCCEL/CAI, Management Science America (MSA), McCormack & Dodge, IBM, and SAP (West German cross-industry financial packages).

- On the hardware side, alliances have been formed with IBM, DEC, Hewlett-Packard (HP), Sun Microsystems, Texas Instruments, Pyramid Technology, AT&T, Tandem, and Motorola. In February of 1988, AC and Aetna Life & Casualty signed a joint development and marketing pact for investment accounting software running on DEC/VAX hardware.

- AC has also focused on the development and aggressive marketing of its own software products, including: FOUNDATION (Software Development Utility), DCS/Logistics (Distribution Control System), and the "MAC-PAC" line of integrated manufacturing software packages.

- Andersen Consulting also has developed a number of relationships as a preferred installer of others' vertical industry software which AC customizes and includes in SI projects. AC currently operates as a preferred installer in the insurance, utilities, retail, financial, services, and state and local government industries.

- Andersen Consulting made a number of acquisitions during 1989.

Acquisitions include the following:

- In September 1989, Andersen Consulting acquired Rossmore Warwick, a 25-30 person British engineering firm that helps design new factories and new process lines.

- In July 1989, Andersen Consulting acquired Courseware, Inc. of San Diego (CA). Terms of the acquisition were not disclosed.

  - Courseware provides computer-based training and training support services to clients in insurance, data processing, communications, real estate, defense, aerospace, and travel, as well as state and federal government. The company had 60 employees at the time of the acquisition and 1988 gross fees of $5.2 million.

  - The operations of Courseware have been merged into Andersen Consulting's Change Management Services (CMS) practice.

- In January 1989, Andersen Consulting acquired McCormack & Dodge's PIOS manufacturing resource planning system. McCormack & Dodge employees who had worked on PIOS development and marketing were offered positions with Andersen Consulting. Terms of the purchase were not disclosed.

  - With an installed base of 75 sites, PIOS is used by a number of large defense contractors.

  - The transaction is part of an agreement between McCormack & Dodge and Andersen Consulting under which the two firms will jointly sell McCormack & Dodge's Millennium financial and human resources software and Andersen Consulting's MACPAC family of manufacturing software products.

- Other 1989 acquisitions include:

  - Computer Management Associates, a consulting firm in Oslo (Norway)

  - Synerlogic, a Canadian consulting firm

  - CMC Consultores, a Spanish consulting firm

But perhaps the most significant developments for Andersen Consulting have been in the ongoing saga of its restructuring to support the information services and systems integration marketplaces. As discussed earlier (Section 2), the formation of Andersen Consulting represented an important change in the firm's outlook on the consulting/IS/SI business.

Andersen's growth has not been painless. During the last two years, a number of key systems integration management personnel have left to start new companies or strengthen competitors.

In 1988 several senior partners departed Andersen Consulting to form another firm, Information Consulting Group, financed by Saatchi and Saatchi. Though this venture was not successful, and has since been purchased by McKinsey and Co., it drained Andersen's technical and management talent.

In 1989, Mel Bergstein, a senior Andersen Consulting partner, joined Computer Science Corporation (CSC) and has become Senior Vice President of systems integration. Two additional key partners joined him at CSC.

In July 1990 the Securities and Exchange Commission ruled that Andersen Consulting could partner with the firm's audit clients. This permits the firm to establish alliances with audit clients such as Oracle or Amdahl.

Exhibit AC-3 summarizes major recent events impacting Andersen Consulting's position in the SI marketplace.

EXHIBIT AC-3

Andersen Consulting—Major Recent Developments

- Extensive formation of software alliances
- Aggressive formation of hardware alliances
- Development/promotion of internally developed software
- Reorganization to support SI/IS business

6. Organization

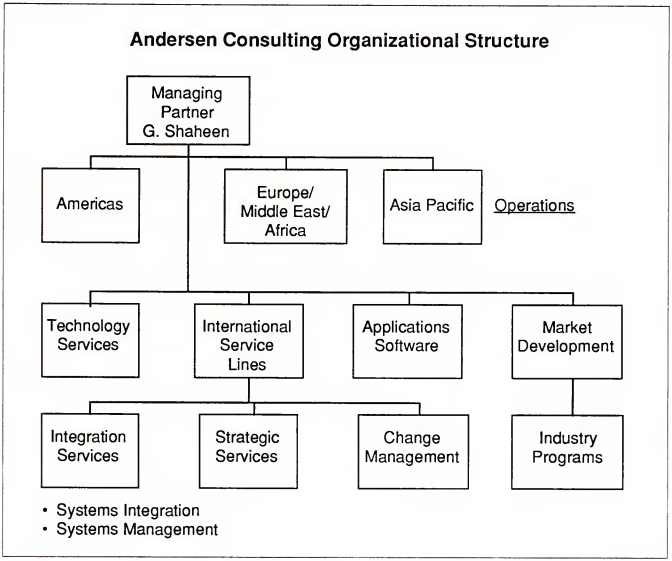
Andersen Consulting manages and delivers its services through the matrixed structure depicted in Exhibit AC-4. The organization is headed by George Shaheen. Reporting to him are managing partners with operational responsibility for three major geographic areas: the Americas, EMEA (Europe, Middle East, and Africa), and the Asia and Pacific area. These partners have responsibility for delivering all of AC's services to their clients.

Also reporting to Mr. Shaheen is a managing partner of international service lines who has responsibility for establishing strategies and plans for each of AC's major offerings—integration services, change management, and strategic services.

Strategic Services assists clients in forming and managing their, strategic planning processes. Included are services that analyze the client's marketplace and competitive position, identify strategic alternatives, establish a formal direction and monitor the execution of strategies.

The Change Management Services practice works with organizations to position people, processes and technology for maximum continuous benefit. These services focus on organizational structure, knowledge transfer and the integrated use of technology. Integration services includes two major components—systems integration and systems management. System integration includes the full range of development and integration activities; system management includes facilities management and remote processing. By including these two activities in a single organization, Andersen Consulting provides complete life cycle development and operations services.

EXHIBIT AC-4



Additional areas that report to Mr. Shaheen include Technology Services, responsible for technical excellence (including products such as FOUNDATION), Application Software, responsible for building and maintaining Andersen's application software packages, and Market Development.

Based on INPUT's interviews with Andersen Consulting, responsibilities are distributed in accordance with Exhibit AC-5, which compares how major responsibilities are managed within the commercial and federal organizations, respectively. A "C" indicates that the responsibility for the activity in question is primarily centralized, a "D" means decentralized, and a "B" indicates that the responsibility is shared by both.

EXHIBIT AC-5

Centralization/Decentralization of SI Business Function Andersen Consulting

Responsibilities	Commercial	Federal
Strategy and long-range planning	C	C
Marketing and promotion	B	C
Account management/sales	D	D
Contract review/approval	B	C
Project management/control	D	D
Implementation/development	D	D
Hardware/software acquisition	B	B
Systems operations (if applicable)	D	D

C = Centralized, D = Decentralized, B = Both

Centralized groups handle marketing, risk management assessment insurance, national contract purchasing, and other activities. Local offices provide the sales emphasis and most of the technical professionals necessary for systems integration projects.

Andersen Consulting has established a number of System Operations, Advanced Technology, and Business Integration Centers to support its activities.

- There are five Systems Operations Centers, which are large mainframe computer facilities staffed with project teams to run the day-to-day computer operations for an organization. These centers are located in Chicago, Dallas, London, Toronto, and Stamford (CT).

- Advanced Technology Centers are staffed with technical experts and project managers who use workstations and network PCs connected to these centers for the automation of the application development process for clients. Advanced Technology Centers are located in Chicago, Dallas, Madrid, Manila, and Stamford (CT).

- Andersen Consulting currently has four sites for its Business Integration Centers which specialize in industry- and function-specific technology. These centers serve as facilities where industry project teams from around the world build and demonstrate visions of the future through full-scale working technology exhibits (e.g., a factory floor or hospital of the future).

  - Business Integration Centers are located in Chicago, Dallas, Atlanta, and Sao Paulo.

  - At one Business Integration Center, Andersen Consulting has designed a minifactory (located in Chicago, IL) that displays CIM techniques. The minifactory integrates the products from 35 different companies and produces an aluminum casting that holds a printed circuit board and plastic connectors.

    Other technologies in the Chicago center include expert systems, voice recognition, vision systems, Ethernet and MAP 2.1, personal workstations, touch screens, computer-aided design, computer-aided manufacturing, MRPII, group technology, robotics, material handling, cell control, computer numerical control, and bar code data collection.

  - A second Business Integration Center, also located in Chicago, contains SMART STORE 2000, a showcase of Andersen Consulting's vision for the food pipeline process through the retailer. The exhibit incorporates state-of-the-art hardware and software applied by more than 40 participating vendors and addresses food industry management concerns about the future.

  - Andersen's LOGISTICS/2000 exhibit, in Atlanta, demonstrates how the integration of technology can benefit a logistics organization. It includes an automated warehouse and offices for sales and customer service, inventory management, transportation management, and executive management.

  - Another Business Integration Center, Hospital of the Future, represents Andersen Consulting's vision of the systems technologies that will support the health care delivery system of the 1990s. Located in Dallas, the exhibit will serve as a permanent site for Andersen Consulting and more than 20 participating vendors.

- Also located at the Dallas Infomart are AC—The Retail Place, The Factory, ACES, and GEO-PLUS. The Retail Place is Andersen Consulting's fully operational Quick Response retail store. The exhibit demonstrates how Quick Response establishes new business strategies, relationships, and procedures to speed the flow of information and merchandise between retailers and vendors. The Factory is a working factory that shows manufacturing automation from order entry through distribution. ACES is Andersen Consulting's Engineering Systems exhibit, highlighting imaging technologies and document management functions applicable to a manufacturer as well as a financial service, insurance, or pharmaceutical company. GEO-PLUS demonstrates geographical mapping solutions.

Andersen Consulting reports a full-time worldwide IS practice staff of 18,000. INPUT estimates that 7,150 of the 11,000 individuals involved directly in the U.S. information systems consulting practice are directly involved in the SI practice. This number is based on the percentage of 1989 U.S. systems integration revenues. Exhibit AC-6 gives an indication of the distribution of resources between various SI-related activities.

EXHIBIT AC-6

Distribution of SI Business Personnel Andersen Consulting

Capability	Percent
Management, strategy, planning, marketing	1
Legal/contract administration, finance	1
Project management and administration	5
Design/development/implementation	83
Hardware/software evaluation/acquisition	5
Hardware engineering	1
Sales	4

7. SI Business Objectives

Andersen Consulting wants to gain and maintain position by being the preeminent provider of solutions to "top" organizations worldwide. The focus is strictly on partnering to provide solutions. Although not explicitly stated in the interview process, INPUT believes that Andersen Consulting sees itself as taking leadership as the "respected consultant/ provider of strategic information systems."

From a business perspective, Andersen Consulting sees the revenue and profits from systems integration as a primary motivator for development of the business, along with control of account base and the need to respond effectively to existing and new customer demand. As would be expected, "dragging" hardware and follow-on facilities management contracts are not of primary interest, although the latter has become more important as competition with IBM and EDS becomes more intense.

8. SI Capabilities Evaluation

And as might be expected, Andersen Consulting has a full in-house capability at the high end of the development life cycle, and also as might be expected, makes heavy use of alliances in the areas of systems software, hardware, custom and communications hardware, and hardware maintenance. A summary of its capabilities follows:

- Business Consulting, Design, and Project Management—Clearly this is the area of Andersen Consulting's strength. The combination of a solid methodology along with uniform and effective training of its personnel produces consistent, if not always exceptional results. Consistent with the professional services orientation of the firm, education, training, and documentation are also significant skills that it markets heavily as part of its capabilities.

  It is interesting to note, but not surprising, that Andersen Consulting indicated that it uses no alliances in these capability areas. It should be noted, however, that its recent acquisition activity, particularly in the non-U.S. includes a number of consulting firms.

- Packaged Applications Software—This is clearly an area of strength for AC. It has made significant investments in the development of numerous packages. (See Section 5 and Exhibit AC-7.) The aggressive marketing of these packages, along with the development and utilization of strong alliances to fill the gaps, gives Andersen Consulting a very strong position within its competitive group in the applications software area.

EXHIBIT AC-7

Andersen Consulting— Applications Software Products Some Examples

Product	Description
MAC-PAC	MRP-II product linking plant automation and manufacturing software. Several other MAC-PAC packages run within this series for specialized applications such as defense contracting.
DCS/Logistics	Manages customer service and logistics functions.
FOUNDATION	A comprehensive set of packages to manage the systems life cycle, which includes submodules METHOD/1, DESIGN/1, and INSTALL/1.
PIOS	(Production and Inventory Optimization System) On-line manufacturing control system acquired from McCormack & Dodge.
CELL-PAC	Factory floor cell control software

- Systems Software/Computer and Communications Hardware—This is an area where Andersen Consulting consistently utilizes other vendors' products, most often through alliances. AC wants to be perceived as, and most likely is, unbiased in its selection of hardware and systems software.

- Network Management/Operations—Although AC does have some contracts in which it performs these functions, this area is neither a primary focus of business nor an area of strength. Because of the long-term importance of networks to worldwide business solutions, AC recently announced an alliance with Infonet, which has worldwide networking capability.

INPUT believes that overall, Andersen Consulting has significant capabilities in the areas that are most important for winning and executing SI contracts. Its focus on the top end of the life cycle and perceived strengths in understanding business solutions in many industry sectors gives it an edge on the market that few others have.

9. SI Strategic Alliances

Andersen Consulting has established some significant alliances that strengthen the firm's SI capabilities. As with most other major systems integrators, AC utilizes both long-term and project-by-project alliances. AC believes that the use of alliances supports its strategy for SI by:

- Providing hardware at competitive prices
- Giving it early access to new technologies
- Providing assistance in financing projects
- Supplementing areas where it has limited internal capability, such as maintenance support and worldwide telecommunications.

The majority of its longer-term alliances have evolved from working with particular subcontractors or partners on a repetitive basis. Other alliances have developed as a result of Andersen's strategy to develop industry-specific software.

The alliances with hardware manufacturers—Hewlett-Packard, for distribution and marketing applications, and IBM—effectively support AC's thrust into financial and manufacturing markets. AC works with DEC as well. Exhibit AC-8 provides examples of AC's strategic alliances in systems integration.

10. SI Capabilities Summary

Andersen Consulting's strengths far outweigh its weaknesses as a systems integrator. In fact, its strong set of capabilities in the high end of the life cycle serves to reduce significantly its dependencies on outside suppliers for the high-risk elements of most SI contracts. Its strengths in software development, project management, and packaged systems and applications software have contributed measurably to the firm's success. The weaknesses in service and repair and, to some degree, design integration, are not critical to success in the business, particularly in the vertical markets where Andersen Consulting has focused.

AC's alliances and applications software offerings also add significantly to its overall capabilities. AC's MAC-PAC (Integrated Manufacturing) and DCS Logistics (Distribution Control System) are good examples of the latter. And, the FOUNDATION development and implementation methodology is probably the best-known package of its type in the industry.

EXHIBIT AC-8

Andersen Consulting—SI Strategic Alliances (Limited Sample)

Product	Description	
Hardware	IBM Hewlett-Packard Pyramid Technology DEC Tandem	Sun Microsystems Texas Instruments AT&T Motorola
Applications Software	UCCEL/CAI MSA McCormack & Dodge SAP (Financial) Inference Corporation	IBM American Software
Systems Software	IBM AION (Expert Systems)	
Cooperative Marketing	Aetna (Insurance)	
Networking/ Telecommunications	Infonet	

Finally, Andersen Consulting has always placed heavy emphasis on training. Utilizing its internal training and development capabilities, Andersen Consulting has adopted a strategy of consistent development of its staff. Therefore, AC professional personnel understand the processes used in acquiring and executing the business and can be deployed in the organization when and where needed. The resulting consistency from understanding the approach facilitates the effective deployment of personnel in SI efforts and is a great asset. Andersen states that it will spend approximately $7,600 on each consulting professional for internal training in fiscal year 1990—a total cost of $137 million.

11. SI Marketing Strategy

The backbone of Andersen Consulting's marketing approach is its vertical business focus and business process orientation (See Section 4). The process is targeted at developing high-level business solutions and converting them into the application of information technology. AC was one of the first, and clearly is one of the most successful, systems integrators to approach the "strategic systems" market. The AC "process" is at the heart of each project. AC understands the value of developing relationships with high-level managers in target firms and industries and very effectively utilizes referral selling at these levels. AC's demonstrated capability of dealing with projects over $50 million makes it one of the few commercial systems integrators that can make that claim.

In addition, as part of its marketing process, AC has developed and utilizes four Business Integration Centers which feature its product offerings. The Chicago, IL center for CIM and JIT manufacturing environments could be considered a "showcase" example.

- Competitors: Andersen Consulting sees IBM and EDS as its prime competitors. In the federal marketplace, it adds CSC to that list. As AC broadens its targets to smaller systems opportunities, it will undoubtedly find a few more competitors.

- Positioning: AC's primary positioning with customers/prospects is to promote its ability to apply information technology to achieve competitive advantage. AC uses this consistent theme in combination with its in-depth vertical industry expertise to present itself as the number-one seller of business solutions. AC has invested heavily in recent years in developing its technological expertise. Though this is still not a primary positioning point, it certainly plays a role when presenting the entire package to the customer. INPUT believes these capabilities will become more significant in the future.

- Promotion: Andersen Consulting uses essentially all forms of promotion for its SI market strategy, even network television. However, AC indicates that the jury is out on all approaches except qualified client referrals, direct marketing, and utilization of the Business Integration Centers, which it rates as highly effective. In addition, AC utilizes public seminars with some degree of success.

Finally, INPUT believes that Andersen Consulting enjoys a somewhat unique marketing position among leading systems integrators which is worthy of comment. AC frequently "writes" the RFP, at least in the figurative sense. AC's business consulting skills often give it entry to the prospect's environment long before a solution or even, at times, the problem, has been defined. Operating from a high-level position as a consultant and supported by the FOUNDATION methodology, AC has

often closed the business before it has been opened. As a full-service provider, AC is a logical selection for implementor once the consulting is done. Exhibit AC-9 summarizes Andersen Consulting's marketing strategy.

EXHIBIT AC-9

Andersen Consulting Marketing Strategy

- Direct marketing/business processes
- Strong methodology
- Vertical market focus for commercial marketplace
- Primary competitors: IBM, EDS, CSC
- Positioning: strategic systems, business expertise
- Promotion: referral, technology centers

12. SI Customer Base/Specific Projects

Andersen Consulting reports that about 80% of its commercial systems integration clients come from its existing account base and about 20% from new prospects specifically solicited for SI. In the federal marketplace, the split is 50% from each source. Undoubtedly, the high percentage of repeat business in the commercial market reflects AC's long-term account relationships with larger firms, while the 50/50 split in the federal market is indicative of its more recent entry into that marketplace and the fact that the federal market is more RFP-driven. In both markets, AC claims that its business has been profitable.

In recent years, AC has moved from a position of mainly pursuing very large projects to soliciting smaller ones as well. INPUT estimates that AC wins almost 60% of the projects it actively bids on; and it has completed projects ranging from $2 million to $80 million (average size about $10 million). AC's top commercial customers are concentrated in discrete and process manufacturing, telecommunications, state and local government, banking and insurance, airlines, and the federal government.

Although Andersen Consulting did not provide a list of specific projects, Exhibit AC-10 contains information on some of AC's key SI engagements.

EXHIBIT AC-10

Examples of Andersen Consulting's SI Contracts

Company or Industry	Project Description	$ Millions
Lockheed	Computer-aided layout/fabrication	3.0
Ashland Chemical	Order entry/ inventory control	5.5
Ca. Dept./ Development Services	Cost recovery system	3.6
Social Security Administration	Integrated administrative and financial system	12.0
Electronics Industry	Circuit Board Test and Assembly	52.0
Utility Industry	On-line billing system	30.0
Retail Industry	Finance, inventory, and sales	10.0
Northwest Airlines	Revenue accounting	N/A
Paris Bourse	Stock exchange clearing and settlement	N/A
Swiss Options and Financial Futures Exchange	To plan and implement electronic clearing and settlement system	N/A

13. Summary and Future Directions

Andersen Consulting has an excellent overall image as a systems integrator. Strengths include its ability to manage the client's planning process, the resources to handle very large projects, and its focus on professional services. Its ongoing investments in key applications software products and the continued development and education of its professional staff will continue to build the positive momentum it has in the marketplace.

Not to be overlooked on the positive side is AC's ability to formulate client requirements. Focusing on the high end of the life cycle, AC frequently "writes" the RFP, so to speak—a position that many of its competitors should envy. The result is a very high success rate in winning contracts, which minimizes marketing and bid preparation costs.

In those areas where Andersen Consulting might be perceived as being weak, there are plans in place.

- The inherent problem with the decentralized partnership profit center structure is being addressed by the recent round of reorganizations.
- The "by the book" (perceived by some as overly structured) approach to design and engineering is fading as higher-level and better-trained consultants enter the SI practice.
- A weak technical image is being overcome by heavy investment in proprietary technology.

The future looks bright for Andersen Consulting. INPUT expects its market approach to become more aggressive as the reorganization of the consulting activity falls into place. INPUT anticipates increased focus on Europe and Asia. In addition, the market can anticipate further heavy investments by AC in technology to support both vertical and, to a lesser extent, cross-industry markets.

CAP GEMINI AMERICA
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29th Floor
New York, NY 10036-6710
(212) 944-6464

Robert J. Sywolski, Chairman and CEO
Stephen A. Carns, President and COO
Subsidiary of CAP GEMINI SOGETI
Total Employees: 3,000
Total Revenue, Fiscal Year End
12/31/90: $225,000,000

The Company

CAP GEMINI AMERICA (CGA) provides information management consulting, complex system design and implementation, software installation and support, and computer training and operations primarily to Fortune 500 and midsized businesses in the banking and finance, insurance, telecommunications, manufacturing, and transportation industries. CGA is the U.S. division of CAP GEMINI SOGETI, an international group of professional services companies.

- CAP GEMINI SOGETI was formed in 1975 by joining three independent computer consulting firms: CAP, a Paris-based software and consulting firm; Gemini, an American firm founded in 1969 as Gemini Computer Systems, Inc. for supporting the establishment of software houses in Europe and the U.S.; and Sogeti, formed in 1969 to provide consulting in the design and implementation of software applications.

- Headquartered in Paris, CAP GEMINI SOGETI has approximately 20,000 employees worldwide and is organized into four operational groups: CAP SESA, CAP GEMINI EUROPE, CAP GEMINI AMERICA, and Hoskyns (U.K.). Combined operating revenues of the groups reached $1.7 billion in 1990.

Sogeti (the parent of CAP GEMINI SOGETI) began its venture into the management consulting business with the addition of United Research, the MAC Group, and Gamma International. Sogeti's Consulting Group combines MAC's strengths in strategy formulation and those of United Research and Gamma International in change management and organization.

- According to Sogeti management, the activity of the Consulting Group will increasingly complement that of CAP GEMINI SOGETI, both in terms of the conduct of their respective businesses (management consulting for Sogeti, and information

technology for CAP GEMINI SOGETI), and the services provided to clients.

CGA was formed in January 1986 through the acquisition of the consulting division of CGA Computer, Inc., and the merger of its operations with CAP GEMINI DASD.

CGA's 1990 revenue reached approximately $225 million, a 2% increase over 1989 revenue of $200 million. A five-year revenue summary follows:

CAP GEMINI AMERICA
FIVE-YEAR REVENUE SUMMARY
($ millions)

	FISCAL YEAR				
ITEM	1990	1989	1988	1987	1986
Revenue	$225.0	$220.0	$165.0	$132.0	$93.0
· Percent increase from previous year	2%	33%	25%	42%	35%

CGA competes with professional services companies throughout the U.S.

Key Products and Services

One hundred percent of CGA's revenue is derived from professional and systems integration services. CGA services and their percent revenue contributions are as follows:

Contract programming	50%
System conversion	10%
System development	10%
Information technology consulting	10%
Systems integration	10%
Training/education	5%
Documentation	5%
	100%

From large-scale projects (where CGA takes total responsibility for deliverables), to technical assistance (where CGA provides supplemental resources that the client manages), CGA assists client companies of all sizes to define and implement information systems.

CGA has expertise in all types of conversions, as well as a range of technical capabilities and project management skills, including:

- Project management methodology
- Application design, development, and documentation
- System conversions and migrations
- Software maintenance

CGA considers its strengths to include:

- Managing complex or large projects
- Operating as part of a diversified team (partnering with the client's resources)
- Operating as a multinational team (partnering with CAP GEMINI SOGETI's worldwide resources)

CGA is organized geographically and by technical specialties. In addition to local technical strengths, National Practice Groups (listed below) provide technical and marketing support to the branches:

- Integrated Manufacturing Technology (IMT)
- Re-engineering/Conversions
- Data Center Services
- Accelerated Quality Solution (AQS)

Additionally, CGA Service Offerings include the following prepackaged services:

- Business Recovery Planning
- Computer-Aided Software Engineering (CASE)
- Conversions
- Data Center Consulting

CGA also has business partnerships with various vendors that allows CGA to perform in both prime and subcontractor roles in systems integration projects. CGA has various agreements with IBM Bull, NCR, Wang, Carleton, Index Technology, Bachman, and KnowledgeWare.

Some recent contracts completed by CGA include:

- System conversion support for Mutual of New York's (MONY) pension management system from an HP-3000 to an IBM 3090 environment (and from HP BASIC to COBOL II). CGA developed a number of custom-designed translation tools and synchronized the efforts of management and technical personnel--from the hardware vendor, the consulting firm that developed

the system, MONY's Pension Operations; and from Computer Information Systems, MONY's MIS group.

- Coordinating the overall system implementation of French Rail, Inc.'s (FRI) automated U.S. ticket reservation/sales system. In addition to developing the application software, CGA assisted FRI with hardware recommendations and coordinated the development and installation of the data communications network.

- Migrating a leading pharmaceutical manufacturer's (Organon, Inc.'s) data processing from an outside processing service using an IBM 4381 to an in-house DEC VAX 8530.

- Customizing documentation and training for Lever Brothers' Hewlett-Packard-based Materials Management software

- Developing an automated cost-reporting system for Forest City, the second largest commercial real estate development and construction company in the U.S.

- Coordinating the move of UMC Petroleum Corporation data centers

- Assisting Imprimis Technology, the former disk drive division of Control Data, convert from CYBER to an IBM hardware platform in order use packaged software for international invoicing and currency clearinghouse applications

Industry Markets

CGA derived its 1990 revenue from the following industry sectors:

Services	25%
Communications	22%
Finance	19%
Insurance	12%
Manufacturing	11%
Government	7%
Other	4%
	100%

Many of the nation's Fortune 500 industrial companies are CGA clients:

- 75% of the Fortune 100 are CGA clients
- 65% of the Fortune 200 are CGA clients
- 85% of CGA business is through repeat clients
- 60% have been CGA clients for more than ten years

Geographic Markets

CGA derived 100% of its 1990 revenue from the U.S.

CGA is organized into eight areas with more than 40 branch offices nationwide.

Computer Hardware and Software

CGA has Wang, IBM AS/400, and IBM personal computers (with IBM Information Network access) for internal use.

COMPUTER SCIENCES CORPORATION
2100 East Grand Avenue
El Segundo, CA 90245
(213) 615-0311

William R. Hoover, Chairman and President
Public Corporation, NYSE, PSE
Total Employees: 23,000 (6/91)
Total Revenue, Fiscal Year End 3/29/91: $1,737,791,000

The Company

Computer Sciences Corporation (CSC), founded in 1959, is the largest independent professional services company in the industry. Serving government and commercial clients, CSC provides management consulting in information technology, requirements analysis, software development, systems engineering and integration, turnkey computer-communications systems, and systems operations (facilities management) services. The company also provides industry-specific proprietary products and services for credit reporting, claims processing, health maintenance organizations, and income tax preparation.

CSC management has set the objective of becoming one of the top two or three companies in the commercial markets for consulting, systems integration, and related professional services in the U.S. and Europe.

- Its strategies are to maintain its dominant position in the U.S. federal marketplace (which contributed 62% of fiscal 1991 revenue), while expanding its market share in non-federal markets through internal growth and acquisitions.

- To position itself for a leading role in the commercial marketplace, CSC has expanded its consulting and implementation capabilities, established a branch-office structure, begun the transfer of technology gained in large federal system projects to its commercial organization, and earmarked $500 million for investment in acquisitions.

- In December 1990 CSC and Equifax Inc. formed a general partnership called CSC Enterprises. CSC contributed all of its credit reporting and collection assets and $1 million in cash in exchange for 97.2% ownership. Equifax contributed $10 million in cash and owns the remaining 2.8%. The partnership was formed to be responsible for CSC's credit services operations and to carry out other business strategies through acquisition and investment.

- The partnership follows an August 1988 agreement with Equifax, under which the credit files of the two companies were combined.

Fiscal 1991 revenue reached $1.74 billion, a 16% increase over fiscal 1990 revenue of $1.5 billion. Net income for fiscal 1991 was $65.0 million, compared to $65.5 million for fiscal 1990. In the five-year summary that follows, financials include results of businesses acquired from their respective dates of acquisition as well as the results of businesses sold up to the date of their divestiture:

COMPUTER SCIENCES CORPORATION
FIVE-YEAR FINANCIAL SUMMARY
($ millions, except per share data)

	FISCAL YEAR					
ITEM	3/29/91	3/30/90	3/31/89	4/1/88	4/3/87	CAGR
Revenue	$1,737.8	$1,500.4	$1,304.4	$1,152.4	$1,031.5	14%
· Percent increase from previous year	16%	15%	13%	12%	23%	
Income before taxes	$102.5	$103.2	$84.5	$71.4	$58.1	15%
· Percent increase (decrease) from previous year	(1%)	22%	18%	23%	36%	
Net income	$65.0 (a)	$65.5 (a)	$52.5	$43.5	$32.2	19%
· Percent increase (decrease) from previous year	(1%)	25%	21%	35%	35%	
Earnings per share	$4.02	$4.07 (a)	$3.28 (a)	$2.73	$2.08	18%
· Percent increase (decrease) from previous year	(1%)	24%	20%	31%	23%	

(a) Includes net non-recurring gains of $3.4 million in fiscal 1991 and $11.7 million in fiscal 1990. The fiscal 1991 gain is the result of the partnership CSC formed with Equifax, net of $4.9 million in phase-down costs on certain operations. The fiscal 1990 amount related to a gain of $19.6 million on the sale of CSC's 40% ownership in Infonet, less costs associated with the phase-down of certain international operations.

Revenue increases for fiscal 1991 were broadly based across all three of CSC's major operating groups. Internal growth from existing operations provided nearly 70% of the revenue increase, while newly acquired operations provided the remainder.

- Excluding the effect of the net non-recurring gains previously discussed, fiscal 1991 and 1990 earnings increased by 8% and 13%, respectively.

Acquisitions made by CSC during 1991 include the following:

- In October 1991, CSC completed the acquisition of Intelicom Solutions Corporation (formerly Telic Corporation) of Bethesda (MD). Terms of the cash purchase were not disclosed.
  - Intelicom, with annual revenues of approximately $30 million, is the largest independent provider of software to the telecommunications industry. Its customer base includes AT&T, GTE, and the seven regional Bell operating companies.
  - Intelicom will operate as a business unit of the Consulting Group.
- In July 1991, CSC acquired CompuSource of North Carolina. Terms of the purchase were not disclosed.
  - CompuSource, with annual revenues of $20 million, provides systems operations and processing services to over 300 clients, including commercial insurance and financial services firms.
  - CompuSource operates through Research Triangle Time Sharing Corporation and Provident Recovery Systems Inc. and maintains data centers in North Carolina, Massachusetts, Pennsylvania, and Ohio.
  - CompuSource now operates as part of the Health and Administrative Services Division within the Industry Services Group.
- In May 1991, CSC acquired Butler Cox, a London-based information technology management consulting firm with annual revenues of approximately $18 million.
  - CSC has agreed to purchase all of the firm's shares (approximately 5.3 million shares outstanding) through a public tender offer at a per-share price of 2.45 British pounds (approximately $4.21).
  - The operations of Butler Cox have been merged into CSC Index.
- In January 1991, CSC (through Cleveland Consulting Associates) acquired Paragon Consulting Group, a Dallas-based firm specializing in operations management consulting services to food and consumer products manufacturers.

- Paragon, with annual revenue of $1.5 million in 1990, has performed projects for such clients as Frito-Lay, Coca-Cola, Pizza Hut, and Taylor Instruments.

- The operations of Paragon have been merged into Cleveland Consulting Associates.

· In January 1991, CSC acquired Moria Informatique, a Paris-based systems integration and software firm.

- Moria, with over 400 employees and 1990 revenue of about $38 million (U.S.), provides software and services to large companies in manufacturing, banking, insurance, transportation, and telecommunications. The firm also provides micro and minicomputer-based information systems targeted to manufacturers of clothing, fashion products, and shoes.

- Moria now operates as CSC Moria.

· In January 1991, CSC acquired Analytics Inc., a private firm specializing in information security and communications systems.

- Analytics, with 350 employees and 1990 revenue of $28 million, has offices in Northern Virginia, Columbia (MD), Fort Monmouth (NJ), and Willow Grove (PA).

- Analytics has been merged into CSC's Systems Engineering Division.

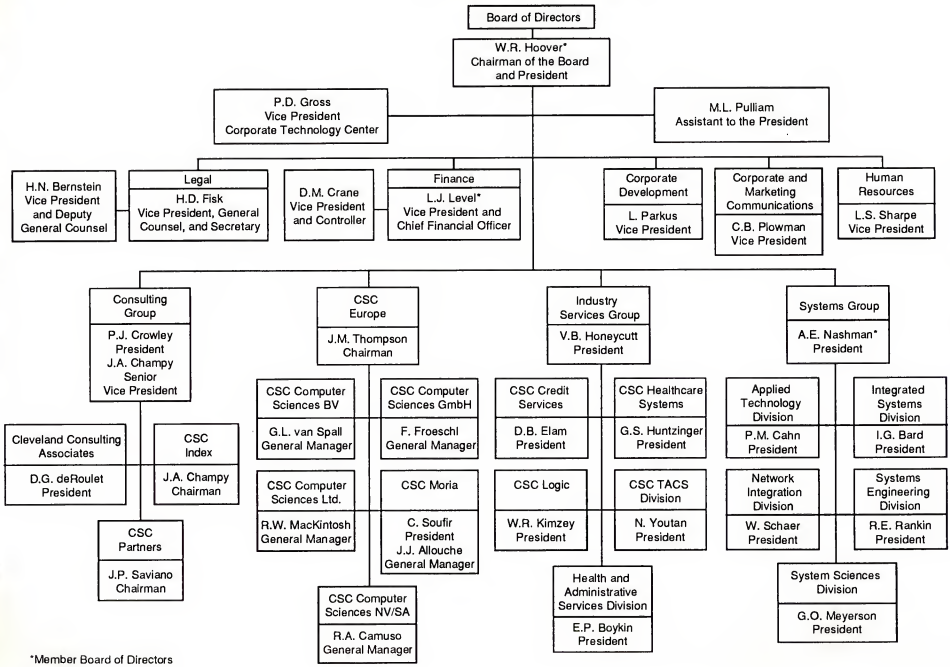
CSC's organization structure is shown in the exhibit. The company currently provides its products and services through three operating groups:

· The Systems Group, headquartered in Falls Church (VA), is the company's primary resource for computer and communications technology. The group has five divisions that primarily serve the U.S. government.

· The Consulting Group, headquartered in Cambridge (MA), is the counterpart of the Systems Group in the commercial marketplace.

· The Industry Services Group, headquartered in El Segundo (CA), serves vertical markets with outsourcing and industry-specific services, principally directed at the insurance, health care, and consumer finance industries.

EXHIBIT
Computer Sciences Corporation



*Member Board of Directors

A three-year summary of source of revenue by operating group follows:

CSC SOURCES OF REVENUE
($ millions)

	FISCAL YEAR		
ITEM	3/29/91	3/30/90	3/31/89
Systems Group			
- Federal government	$1,029.9	$952.5	$863.9
- Commercial	12.2	12.5	9.6
- State & local government	0.6	0.7	3.9
- International	3.3	0.5	3.7
Subtotal	$1,046.0	$966.2	$881.1
Consulting Group			
- Federal government	$9.8	$9.9	$2.4
- Commercial	151.4	108.6	80.9
- State & local government	8.7	10.7	1.8
- International	201.0	146.8	58.7
Subtotal	$370.9	$276.0	$143.8
Industry Services			
- Federal government	$30.3	$30.4	$29.9
- Commercial	259.4	196.7	144.1
- State & local government	31.2	31.1	31.3
Subtotal	$320.9	$258.2	$205.3
Operations sold (a)			
- Federal government	--	--	$25.2
- Commercial	--	--	32.9
- State & local government	--	--	0.1
- International	--	--	16.0
Subtotal	--	--	$74.2
Total Revenue	**$1,737.8**	**$1,500.4**	**$1,304.4**

(a) Includes the results of CSC Compufact, which was sold in March 1989, and the results of INFONET through the first three quarters of fiscal 1989.

The Systems Group's fiscal 1991 revenue increased $80 million, or 8%, over fiscal 1990 levels, due principally to a substantial increase in federal contract awards. During fiscal 1991, the Systems Group won federal contract orders of $1.25 billion, more than twice the federal order volume of the prior year. The group contributed 60% of CSC's total revenue.

The Consulting Group contributed 21% to total fiscal 1991 revenue and reported the largest gains during the year. Revenue for the group rose $95 million, or 34%.

- European consulting revenues climbed 37% over the prior year, while U.S. revenue climbed 31%.

- Newly acquired operations provided approximately two-thirds of fiscal 1991's European growth and approximately 40% of the U.S. growth.

The Industry Services Group's fiscal revenue increased $63 million, or 24% over fiscal 1990.

- Nearly three-quarters of the increase reflects continued expansion of services provided to the health care and insurance industries. This trend is expected to slow in fiscal 1992.

- The remainder of the fiscal 1991 increase primarily relates to the acquisition of Logic, Inc., which was first consolidated in the fourth quarter of fiscal 1990.

Revenue for the six months ending September 27, 1991 reached $923.8 million, a 12% increase over $827.4 million for the same period in 1990. Net income was $28.4 million, compared to $27.4 million for the same period a year ago.

- Federal revenue totaled $558.7 million, compared to $520.8 million for the same period last year.

- Revenues from commercial operations, including U.S. and Europe, totaled $335.2 million, compared to $306.6 million for the previous year.

- The continuing recessionary climate in Europe tempered CSC's international growth and had a significantly adverse impact on margins.

As of June 1991, CSC had approximately 23,000 employees. The company currently has approximately 23,300 employees, segmented as follows:

Systems Group	67%
Industry Services Group	17%
CSC Consulting	15%
Other	1%
	100%

Major competitors by primary service/product area include the following:

- Federal government professional services: TRW, Hughes Aircraft, IBM, PRC, Inc., General Electric, AT&T, Unisys, Boeing Computer Services, and Ford Aerospace & Communications Co.

- Commercial professional services: Andersen Consulting, Electronic Data Systems (EDS), and IBM
- Medicaid claims processing: Blue Cross/Blue Shield and EDS
- Credit reporting service: TRW Information Services and TransUnion
- Health care systems: Jergovan and Blair, Inc.

Key Products and Services

CSC's $1.738 billion in fiscal 1991 revenue was derived approximately as follows:

PRODUCT/SERVICE	REVENUE ($ millions)	PERCENT OF TOTAL
Professional services (a)	$547	32%
Systems integration (b)	509	29%
Systems operations	469	27%
Processing/network services	161	9%
Turnkey systems	52	3%
TOTAL	**$1,738**	**100%**

(a) Includes $42 million in management consulting revenue.

(b) Includes $10 million in application software revenue.

Systems Group:

The Systems Group is the company's primary provider of technical services to the federal government. Services provided include systems engineering and integration, the development of custom-designed computer-based systems and communications systems, operational support of clients' technical activities, clients' computer facilities management, and turnkey system development.

The Systems Group consists of five units:

- The Integrated Systems Division, based in Moorestown (NJ), designs, implements, and integrates systems for office automation, digital imaging, and administrative and engineering support, and for military uses such as weapons control, logistics, wargaming, and command, control, and communications (C^3I).
- The System Sciences Division, headquartered in Calvert (MD), provides systems engineering, analysis, software development,

and end-to-end integrated data systems and services primarily to aerospace clients such as NASA and the FAA.

- The Network Integration Division (formerly the Network Systems Division), headquartered in Falls Church (VA), provides network and systems integration to both government and industry. Specializing in networks, distributed systems, and network computing, the division provides a range of services, from architecture through operations and maintenance.

- The Systems Engineering Division (formerly the Special Projects Division), headquartered in Falls Church (VA), performs high-level technical management projects, known as systems engineering and technical assistance (SETA), for the government. The division also performs research and development in systems and software technologies, and special activities in signal processing, communications systems, and information processing.

- The Applied Technology Division, headquartered in Falls Church (VA), provides systems operations (facilities management) services, primarily for NASA; provides operations and maintenance services to aircraft and weapons test centers; and provides software development support to federal agencies. This division, CSC's largest business unit, has about 9,000 employees and $500 million in annual revenue.

Recent contract awards for the group include the following:

- In September 1991, CSC received a five-year, $68 million contract from the Defense Information Systems Agency to maintain and operate systems that support the command and control of military forces worldwide.

- In September 1991, CSC received a three-year contract from the Resolution Trust Corporation (RTC) to provide financial management services to thrift institutions that RTC is managing in the western U.S.

- In July 1991, CSC was awarded a subcontract from AT&T to perform a range of support and integration services for all U.S. Treasury organizations on a nationwide basis. CSC's revenues from the seven-year contract are expected to be approximately $140 million.

- In June 1991, CSC was awarded a five-year, $180 million contract (including options) to provide the Air Force Systems Command with management information systems and technical support for

communications, computer system development, implementation and operations at 14 sites throughout the U.S.

- In December 1990, CSC was awarded a $120 million contract by the General Services Administration (GSA) for system development and software support services for business applications in the GSA's Pacific Zone. In August 1990, GSA selected CSC to provide similar services for scientific and engineering applications under a contract valued at $48 million.

- In October 1990, CSC won a recompete and significant expansion of work performed since 1977 from the Environmental Protection Agency (EPA) under a five-year contract valued at $347 million. CSC (with staff of over 1,600) provides a range of data processing, telecommunications, office automation, records management, data analysis, and development services for EPA's headquarters, 10 regional offices, 14 laboratories, and National Computer Center.

- In September 1990, CSC was awarded a three-year, $70 million contract by the Army Communications and Electronics Command (Fort Monmouth, NJ) to provide research and development support for command, control, and communications systems. Study areas include distributed processing, artificial intelligence, network performance, and simulation.

- In August 1990, CSC was awarded a ten-year, $48.8 million contract by the Treasury Department's Financial Management Service to modernize hardware and software systems that support cash management, payments, accounting, and other key functions of the agency.

CSC is a member of the AT&T team selected in December 1988 to replace the federal government's current telecommunications system. Known as FTS2000, the program provides government agencies with an integrated system for voice, data, and video services. CSC is providing a billing system and other software services for FTS2000. Both CSC's Systems Group and Partners unit are engaged in the FTS2000 program.

Consulting Group:

The Consulting Group provides management consulting, requirements analysis, system design, software development, system engineering and integration, communications systems engineering, and facilities management for non-federal organizations worldwide. These activities are performed by the following units:

- CSC Index, Inc., based in Cambridge (MA), is an international management consulting firm that assists corporations in their operating and financial performance.

- CSC Partners Inc. (formerly Computer Partners, Inc.) is a wholly owned subsidiary based in Waltham (MA).

- Cleveland Consulting Associates, Inc., based in Cleveland (OH), specializes in logistics and operations management consulting.

- CSC Europe S.A., headquartered in London, manages CSC Consulting's activities in Belgium, France, Germany, the Netherlands, and the U.K. These activities include CSC N.V./S.A. (formerly CIG-Intersys) and CSC Inforem.

CSC Index focuses on three main disciplines: business strategy and operations; information technology; and change management.

- Business strategy and operations includes:

  - Formulating business strategies
  - Redesigning management and operational processes to achieve goals
  - Developing new approaches for working with suppliers and customers to improve speed and service

- Information technology consulting includes:

  - Identifying opportunities where information technology can enable new strategic initiatives to be taken
  - Developing approaches for the competitive application of information technology

- Change management consulting includes:

  - Assessing and developing human resources to meet business needs
  - Building a clear understanding of and commitment to required business changes
  - Creating and implementing new structures for the systems organization

- Index's fiscal 1991 revenue was about $60 million, a 50% increase over fiscal 1990 revenue.

- Index works primarily for the Fortune 500 manufacturing and service companies in the U.S. and the Financial Times 500 in Europe. The firm has assisted 19 of the 25 largest U.S. corporations.

- In addition to consulting, Index conducts executive education programs and corporate-sponsored research for more than 200 major companies.

CSC Partners provides consulting services to Fortune 1000 corporations and other large users of information systems technology. The former Communications and Integration Services Division of CSC was merged into CSC Partners during fiscal 1991.

- The firm specializes in information systems consulting, systems integration, and the design, building, and integration of information systems.

- Services include information system planning; assisting companies in becoming more effective at systems development; developing IS and process quality programs; reviewing "out of control" projects; data base reviews; data modeling; project management; technology architecture; requirements definition; and professional services.

- CSC Partners' fiscal 1991 revenue approximated $120 million (including the results of the former Communications and Integration Services Division). This represents a 15% increase over combined fiscal 1990 revenue.

- The unit specializes in the manufacturing, distribution, financial services, energy/utilities, retail, publishing, and communications industries.

- The firm also provides technical, project management, and quality improvement education and training.

- CSC has had a continuous contractual relationship with AT&T for over 20 years.

- For U.S. Sprint, CSC is developing a system that automates service requests for consumers and businesses.

Cleveland Consulting counsels clients on strategies and effective management of all links in their supply chain. It serves more than 250 clients worldwide, including 25 of the 50 largest U.S. industrial companies.

CSC's European operations provide consulting, software development, and systems integration services to national and transnational clients, primarily in Belgium, France, Germany, the Netherlands, and the U.K. Contract examples include:

- Developing administrative and security systems for the Kuwait Ministry of the Interior
- Management of all computer services for the Mersey Regional Health Authority in England under a $16.2 million facilities management contract
- The design and development of a new generation of customer-based applications supporting the lending, insurance, and brokerage operations of the Bradford & Bingley Building Society (U.K.)

In the area of commercial systems integration, CSC has the following alliances:

- In June 1990, CSC and Mitsui & Co. entered into an agreement to jointly market systems integration services to U.S. operations of Japanese companies.
- In January 1990, CSC signed a service alliance agreement with DEC to pursue systems integration business in the distribution and logistics marketplace, as well as opportunities within the telecommunications industry.
- CSC Partners' Minneapolis (MN) office is an IBM Business Partner for midrange systems.

Industry Services Group:

The Industry Services Group serves vertical markets with outsourcing and industry-specific services, principally directed at the insurance, health care, and consumer finance industries through the following divisions:

The Health and Administrative Services Division provides large-scale medical claims processing, systems operations, and related services for state and federal agencies.

- In August 1991, CSC was selected by the California Department of Insurance to design and operate systems and provide full administrative support for the state's Residential Earthquake Recovery Fund. The five-and-a-half-year outsourcing contract is valued at $66.3 million.

- In June 1991, CSC was awarded a $149 million contract with the New York State Department of Social Services to act as fiscal agent for the state's Medicaid program. The contract continues work the company has performed since 1986.

- The division also processes medical claims from coal miners for the U.S. Department of Labor's black-lung program (a four-year contract was awarded to CSC in June 1989), acts as servicing agent for the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program, and is automobile insurance servicing carrier for the New Jersey Market Transition Facility (MTF).

CSC Logic, Inc., acquired in February 1990, provides systems operations, processing services, and application software products for the administration of life and disability insurance for credit loans and mortgages, collateral protection insurance, and insurance for automobile manufacturers' warranties.

- The majority of CSC Logic's business is from full administration (systems operations) services, followed by processing services and software licensing. CSC Logic's CALS-II software is available for IBM and compatible mainframes and microcomputers and through CSC Logic's data center in Dallas.

- CSC Logic currently has approximately 100 clients, including insurance companies, financial institutions, and financial subsidiaries of automobile manufacturers.

CSC Healthcare Systems, Inc. provides turnkey systems, application software, and associated support services to managed health care companies.

- ComCare is a Prime-based turnkey system for health maintenance organizations, preferred provider organizations, third-party administrators, and traditional indemnity carriers. ComCare includes modules for membership and billing, claims processing, utilization review, finance and accounting, and ancillary clinical functions. There are over 200 systems installed in 30 states.

- The division also provides IBM AS/400 and 3090-based application software and turnkey systems for medical groups, managed health care organizations, and private practices nationwide.

  - The products support various medical office functions, including utilization management, benefits coordination,

claims adjudication, premium and fee-for-service billing, membership, and general financial functions.

- The products are installed in over 800 physicians' offices and at more than 60 health maintenance organizations (HMOs).

CSC Credit Services generated an estimated $120 million in revenue during fiscal 1991, compared to $115 million in revenue during fiscal 1990.

- As the result of an agreement formed with Equifax during 1988, credit reporting processing is furnished through Equifax's credit operations.

  - CSC has converted its more than 110 million consumer credit files to Equifax's computer system to create a joint national consumer credit file from which both companies can sell reports from each other's files to credit grantors, with Equifax performing the processing. This joint credit file provides nationwide credit grantors with a single source of credit information, instead of having to deal with multiple sources on a local or regional basis.

  - CSC Credit Services continues to own its credit files and receives all revenues from the sale of the credit information they contain. CSC pays Equifax a processing fee for each report supplied to a credit grantor.

- CSC continues to own and operate 31 credit bureaus. CSC Credit Services also owns 31 collection agencies and provides all processing services for the collection agencies.

CSC TACS Division provides income tax return processing services to professional tax preparers located in 15 western and midwestern states.

- Services are provided on a batch basis from a data center in Los Angeles with direct access available via communications links.

In September 1991, CSC and General Dynamics Corporation formed a 10-year agreement under which CSC will provide systems operations services to General Dynamics' aerospace and defense units.

- CSC will pay General Dynamics approximately $200 million for facilities, equipment, software, and services.

- General Dynamics has data centers in Norwich (CT), Fort Worth (TX), and San Diego (CA), and another 28 service sites around the country. These facilities and approximately 2,600 employees of General Dynamics Data Systems Division will transfer to CSC.

- CSC will form a new division within the Industry Services Group. It will contribute about $350 million to CSC's revenue in its first full year of operation.

Industry Markets

A three-year summary of source of revenue by industry follows ($ millions):

	FISCAL YEAR					
	3/29/91		3/30/90		3/31/89	
ITEM	REVENUE $	PERCENT OF TOTAL	REVENUE $	PERCENT OF TOTAL	REVENUE $	PERCENT OF TOTAL
Federal Government						
- Department of Defense	$561.5	32%	$531.7	35%	$508.7	39%
- NASA	250.2	14%	233.9	16%	221.7	17%
- Civil Agencies	258.3	16%	227.2	15%	221.9	17%
Subtotal	$1,070.0	62%	$992.8	66%	$952.3	73%
Commercial	$423.0	24%	$317.8	21%	$247.8	19%
State & Local Government	$40.5	2%	$42.5	3%	$39.1	3%
International	$204.3	12%	$147.3	10%	$65.2	5%
TOTAL	**$1,737.8**	**100%**	**$1,500.4**	**100%**	**$1,304.4**	**100%**

For fiscal 1991, approximately 62% of revenue was derived from the federal government, 14% from banking/finance/insurance, 9% from manufacturing/distribution, 2% from state and local government, and 13% from other sources, including transportation, utilities, communications, services, and education.

Commercial revenue is derived from Fortune 500 companies in manufacturing, insurance, and banking and finance; telephone companies; and the retail, wholesale/distribution, medical, and services (primarily accountants) industries.

International revenue is derived from foreign governments, financial institutions, transportation companies, and manufacturers.

Geographic Markets

CSC's revenue and operating income by geographic region for the last three years has been as follows ($ millions):

	FISCAL YEAR					
	3/29/91		3/30/90		3/31/89	
ITEM	REVENUE $	PERCENT OF TOTAL	REVENUE $	PERCENT OF TOTAL	REVENUE $	PERCENT OF TOTAL
Revenue						
- U.S.	$1,536.8	88%	$1,353.6	90%	$1,226.0	94%
- International	201.0	12%	146.8	10%	78.4	6%
	$1,737.8	100%	$1,500.4	100%	$1,304.4	100%
Operating income						
- U.S.	$123.4	95%	$114.6	98%	$105.1	98%
- International	6.6	5%	2.3	2%	2.2	2%
	$130.0	100%	$116.9	100%	$107.3	100%

CSC maintains offices in more than 200 locations throughout the U.S. Operations in the U.K., Belgium, Germany, and the Netherlands are through subsidiary companies.

Computer Hardware

Data centers operated by CSC include the following:

- CSC Credit Services' data center in Houston uses IBM 4381, DEC VAX 8650, and DEC VAX-II/785 systems.
- The Health and Administrative Services Division has an Amdahl 5870 installed in Lanham (MD) for claims processing and related insurance functions.
- CSC TACS has an IBM 4081 installed in Los Angeles.
- CSC Logic, Inc. has an IBM 3090-200E, MVS/ESA, installed in Dallas.
- In support of its research and development efforts in software engineering, supercomputing, and other fields, CSC's Systems Group at Falls Church (VA) operates several laboratories which evaluate equipment lent by manufacturers. Company-owned equipment at this location includes a Relational 1000 and a DEC MicroVAX II.

COMPANY PROFILE

Computer Sciences Corporation

1. Key SI Contacts:

Federal Systems Integration

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Falls Church, Virginia 22042

Commercial Systems Integration

Mr. Paul J. Crowley
President, CSC Consulting
5 Cambridge Center
Cambridge, Mass. 02142

Mr. James A. Champy
Senior Vice President, Consulting Group
Cambridge, Mass.

Mr. John M. Thompson
Chairman, CSC European Operations

Corporate (Federal or Commercial)

Mr. Mel Bergstein
Senior Vice President, Systems Integration
5 Cambridge Center
Cambridge, Mass. 02142

2. Description of Principal Business

Computer Sciences Corporation is a nearly pure computer services organization. It manufactures minimal amounts of equipment, primarily specialized communications interfaces in low volume. It promotes itself as a leading systems integrator and software developer. The company also provides specialized proprietary services to markets such as finance, healthcare, claims processing, network management and income tax processing. CSC also provides remote computing services to private industry and government.

Exhibit CSC-1 includes CSC's revenues for fiscal year 1990, which ended March 31, 1990. As can be seen, the majority of revenues (65%) was from the systems group, which provides systems and services to the federal government.

EXHIBIT CSC-1

Fiscal Year 1990* Revenues by Business Segment

Business Segment	Revenues ($M)	Percent
Systems Group	966.2	65
CSC Consulting	276.0	18
Industry services	258.2	17
Total	1,500.4	100

* Fiscal Year Mar. 31, 1989 - Mar. 31, 1990

In addition to sustained growth in this traditional business area, CSC is making a major thrust to expand its business into the commercial market through its consulting and industry services groups, which represented 35% of its fiscal year 1990 business. These services include consulting and systems development and integration services for commercial, financial, industrial and international clients. Also included are consumer credit, health and insurance processing services, and a segment which provides income tax processing services.

3. CSC Competitive Position

CSC has been very successful with its federal systems and services and professional services businesses, where it has provided requirements analysis, software development, systems engineering and integration, and communications and facilities management, primarily to its major customer, the U.S. federal government. The company has historically had a very high success rate, winning over 60% of bids, although in calendar year 1989, its win rate declined to 57%. It also has a strong base of multiyear mega-contracts, generally contracts with a total value in excess of $100 million, which fuel the company's traditionally strong growth rates. CSC reports that in fiscal 1989 it won eight such awards with total contract values in excess of $1.7 billion, in addition to scores of smaller contracts. In fiscal 1990 it did not have its customary success in winning these large "mega-contracts."

CSC had not played a major role in the commercial professional services market before 1987, when it announced a goal of attaining 50% of its profits from commercial business by 1992, based on increasing its

commercial revenues to 40% of the total. The company also announced at that time that it had $200 million to spend on acquisitions to augment its existing commercial business. It has made several significant acquisitions to implement this strategy, including Computer Partners, Index Group, CIG-Intersys and others,which will be described in Section 5.

In January 1989, it sold a majority interest in Infonet, its worldwide public network subsidiary, to a group of European and Pacific telecommunications administrations to strengthen Infonet's position as an international communications service. In 1990, it sold its remaining Infonet interest to MCI. CSC had an extremely successful fiscal 1990, with revenues growing 15%, 22% from continuing operations, and net earnings 15%. Its federal revenues grew significantly (11%), despite a fiscally constrained federal market. The nonfederal segments of CSC's revenues grew from 29% to 34% of total revenues, as can be seen in Exhibit CSC-2.

EXHIBIT CSC-2

CSC Fiscal Year Revenues by Major Market

Market Segment	Percent of Total Revenues	
	1989	1990
Federal government	71	66
Commercial	20	21
State and local government	3	3
International	6	10

INPUT believes that a cornerstone of CSC's commercial thrust will be systems integration. It will combine its federal systems integration experience with the consulting and vertical marketing expertise gained through its existing commercial processing services businesses and acquisitions. It can also be expected that CSC will continue to look for acquisition candidates to broaden its commercial capability and geographic coverage.

CSC indicated that its calendar year 1989 systems integration revenues were $400 million, distributed as shown in Exhibit CSC-3.

EXHIBIT CSC-3

CSC Systems Integration Revenues 1988

Business Component	$ Millions
Federal	325
Commercial	75

4. Markets Served

CSC has expertise in tax, credit, health and insurance processing through its processing services offerings. CSC Partners (formerly Computer Partners) provides vertical market expertise primarily in manufacturing, distribution, finance, insurance, retail, publishing, utilities and state and local government. Cleveland Consulting adds depth in consulting in logistics and operations management. CIG-Intersys provides European experience in retail banking as well as in the other vertical industry markets in which CSC claims strength. The company is leveraging this experience by focusing its systems integration activities on the vertical industries identified in Exhibit CSC-4.

Exhibit CSC-4 also identifies specific functional markets that CSC is pursuing. Its focus on these markets is a result of its technology expertise, gained from participating in many large federal programs.

EXHIBIT CSC-4

SI Market Focus—CSC

Vertical Industry	Functional
Federal government	Networking
State and local government	Office automation
Distribution	Digital image handling
Retail	Facilities management
Finance	Logistics
Insurance	
Telecommunications providers	
Publishing	
Manufacturing	

5. Recent Events

In July 1986, CSC acquired Computer Partners (revenues of approximately $15 million), a professional services firm with offices in the northeast corridor. Computer Partners, now known as CSC Partners, has vertical market expertise in manufacturing, distribution, finance, insurance, utilities, and state and local government.

In October 1988, CSC acquired Index Group, Inc. ($30 million in annual revenues), a leading consulting firm to major U.S. and European companies specializing in the strategic use and management of information technology. This acquisition added a strong senior commercial consulting capability to CSC's strong systems integration credentials.

In April 1989, CSC announced that it would acquire CIG-Intersys, the largest computer services organization in Belgium (1988 revenues of approximately $85 million). CIG also operates in France and the Netherlands, and holds minority ownerships of firms in Argentina and West

Germany. It provides consulting, computer systems and network integration, software engineering, software products, and data processing services. CSC already had European operations in the United Kingdom, Germany, the Netherlands and Belgium. This acquisition strengthens its European market position as well as adding specific European vertical market knowledge.

In May 1989, CSC created a separate commercial and international group, called the Consulting Group, which brought together under one organization: CSC Partners, focused on commercial systems development and integration; Index Group, which works with clients on information technology strategies; European operations, including CIG-Intersys; and Communications Industry Services, a software development organization for telephone company needs. This Group was managed by Thomas Gerrity, former Chairman of the Index Group, and was focused on providing commercial and international customers with a full range of information services. This move focused these organizations, which had reported independently to the Chairman, under a single management and on the commercial and international professional services market.

In mid-July 1989, CSC announced that Mel Bergstein, a former senior partner of Andersen Consulting and a well-known and respected industry figure, had joined CSC as a senior executive in the Consulting Group. While with Andersen Consulting, Mr. Bergstein was instrumental in the technical development of development methodologies and products, including FOUNDATION and MACPAC. He was also responsible for the development of a strong sales organization. His reputation and knowledge will assist CSC in future acquisitions, product development, refocusing federal skills and methodologies to commercial markets, and in the overall marketing and sale of CSC's evolving capabilities. This event emphasizes again how serious CSC was and is about penetrating commercial systems integration. In May, 1990 Mr. Bergstein was given corporate responsibility for systems integration reporting directly to Mr. Hoover.

In November 1989, CSC made three additional acquisitions to enhance its commercial capabilities. They were: Cleveland Consulting, LPS Inc., and Inforem Limited.

Cleveland Consulting counsels clients on strategies and effective management of all of the linkages in their supply chain. The activites involved are buying materials and making, moving, and selling products. This Cleveland, Ohio-based firm was purchased from Saatchi and Saatchi when it decided to disband its consulting business.

LPS, Inc. was a privately held professional services firm, based in Minneapolis, which added 140 employees and annual revenues of $9 million in an area where CSC had limited geographic coverage.

EXHIBIT CSC-5

Major Recent Developments

- Acquisition of Computer Partners and Index Group
- Acquisition of CIG-Intersys
- Consolidation of commercial professional services
- Key executive appointments

Inforem Limited, based in metropolitan London, provides information technology and consulting, and has developed integrated systems for clients in the financial services, retail and leisure industries. It has annual revenues of about $20 million.

In the first quarter of 1990, CSC acquired Dallas-based LOGIC Inc, a closely held firm providing financial insurance software and services. LOGIC's software systems administer life and disability insurance for credit loans and mortgages insurance for warranty and mechanical breakdown and collateral protection insurance.

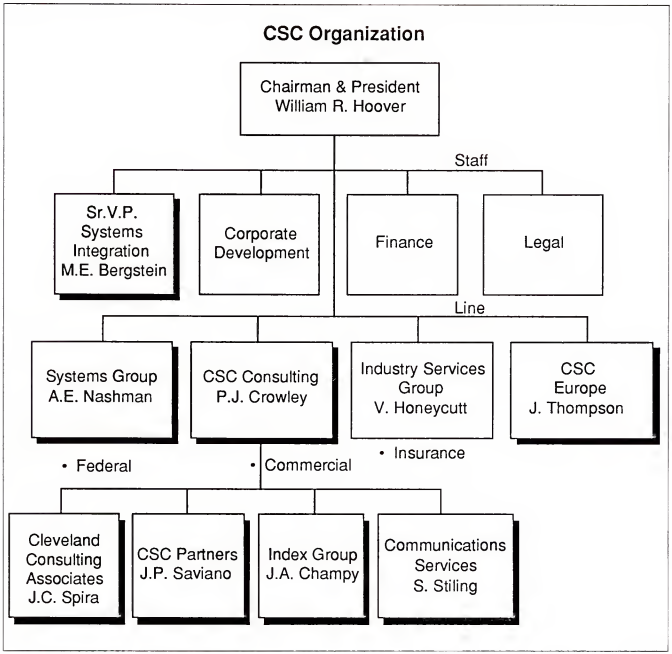
In the first quarter of 1990, CSC also signed an alliance with Digital Equipment Corporation to pursue systems integration business in the distribution and logistics marketplace, as well as integration opportunities within the telecommunications industry.

6. CSC Organization

The CSC organizations that are involved in systems integration are highlighted in Exhibit CSC-6.

SI resources are distributed across three major organizations consisting of a number of divisions and companies. Federal systems integration activities are the responsibility of Alvin Nashman, Group President, Systems Group. Commercial systems integration activities are now the responsibility of Paul Crowley, President of CSC Consulting, and are carried out in CSC Partners, Index Group, Communications Services and Cleveland Consulting. The third organization, headed by John Thompson, has responsibility for developing CSC's European presence. Mel Bergstein, Corporate Vice President of Systems Integration, provides staff focus and guidance for systems integration, pursues corporate-to-corporate alliances, and has responsibility for large account development.

EXHIBIT CSC-6



CSC has an SI staff of over 3,000—2,000 of whom are focused on federal work and more than 1,000 on commercial.

Exhibit CSC-7 is an estimate of how the SI personnel are distributed among functional activities. There is a strong professional services content, with 85% of the resources allocated to project management, systems development and implementation, hardware and software evaluation, and acquisition and hardware engineering.

EXHIBIT CSC-7

CSC Distribution of SI Personnel

Capability	Percent
Management, strategy & planning	5
Legal support/contract administration	5
Project management	15
System development/implementation	50
Hardware/software evaluation/acquisition	15
Hardware engineering	5
Sales	5

CSC has a similar organization philosophy for both federal and commercial SI activities. As indicated in Exhibit CSC-8, most implementation activities are decentralized, though marketing and promotion are done centrally. Strategy and long-range planning are a joint activity with both line and headquarters participation. Account management and sales are performed centrally for federal SI and are both centralized and decentralized for commercial SI.

EXHIBIT CSC-8

Centralization/Decentralization of SI Business Functions

Responsibilities	Commercial	Federal
Strategy and long-range planning	B	B
Marketing and promotion	C	C
Contract review/approval	B	C
Account management/sales	D	D
Project management/control	D	D
Implementation/development	D	D
Hardware/software acquisition	D	D
Systems operations	D	D

(C=Centralized, D=Decentralized, B=Both)

7. SI Business Objectives

CSC is clearly focused on systems integration as a means of changing its revenue and profit mix. As mentioned earlier, CSC's primary objectives for SI are revenue and profit growth, particularly in commercial SI. Commercial SI expansion will be driven by corporate business objectives that include 40% of revenues and 50% of profits being derived from the commercial business. CSC recognizes that industry is looking for business and information consulting and business solutions, and has established a primary objective of responding to these customer demands. Secondary SI objectives are control and expansion of its account base, and developing a follow-on facilities management business. CSC, through a task force headed by Mr. Bergstein, is currently examining increased participation in the systems operations market. The company's objectives do not include significant, if any, hardware or software sales.

8. Internal SI Capabilities Evaluation

CSC's experience, its strong set of technical skills, and its success in federal systems integration positions it well to participate in the commercial SI market. In addition, through acquisition and its processing services activities, it has a base of commercial skills. Brief descriptions of the individual SI capabilities are given below:

a. Business Consulting—These skills, once limited to federal applications, have been expanded to the commercial market through the acquisition of a premier consulting organization, Index Group. The acquisitions of Computer Partners, Cleveland Consulting, CIG-Intersys and other firms also strengthen this area.

b. Design Methodology—CSC has been known traditionally as a competent and capable designer of information solutions. It has and uses CASE products to support its design methodology.

c. Design and Integration, Project Management, Software Development, and Education, Training and Documentation—CSC has been strong in these areas and should be able to transfer these capabilities to commercial opportunities effectively.

d. Packaged Application Software—CSC's primary application software offerings are provided through its Industry Services Group. It had marketed a turnkey system called MAN-FACT II to discrete manufacturers, but sold it in March 1989. CSC also has developed industry-specific software for insurance and tax processing. Its purchase of Logic Inc. strengthens its insurance offerings.

e. Packaged Systems Software, Standard Computer Hardware and Custom Computer Hardware—Computer Sciences manufactures no computer hardware, nor does it develop systems software products. It prefers the flexibility of being able to select the products that are best suited to meet the needs of the current systems problem and that will provide the best solution.

f. Network Management and Operations—CSC has strong network management and operations capability as a result of experience developed through its remote processing businesses, its worldwide Infonet network, and the building of private data networks for the U.S. government. It has participated successfully in large federal network contracts such as the U.S. Treasury and FTS-2000. It is interesting to note that it often works closely with AT&T; announcement of a formal relationship with AT&T has been rumored in the past.

g. Service and Repair—CSC offers system service and repair only as part of its remote processing and network services, or ancillary to its systems integration contracts.

h. Software Maintenance—Since CSC provides limited software products, it has limited software package maintenance capability.

9. SI Strategic Alliances

CSC has historically not made a conscious effort to publicize a broad set of alliances. It believes that development of these alliances would cast doubt on its ability to be truly independent in developing the best solutions for its customers. In its federal SI efforts, CSC has worked with most of the major hardware and software vendors in teaming or prime contractor/subcontractor relationships. The company feels comfortable that it can develop and work whatever relationships are necessary to meet its prime contractor responsibilities.

During late 1989, CSC did begin to announce formal alliances, the first with SP America to market vertical industry solutions, primarily in manufacturing and distribution-related industry segments. In early 1990 it announced an alliance with Digital Equipment to pursue SI opportunities in distribution, logistics and telecommunications.

Among its many relationships, of particular note are those with AT&T and IBM. AT&T is a major CSC customer and CSC has developed a number of projects for and with AT&T, including the major U.S. government communications contract, FTS-2000. CSC has worked with IBM on a variety of programs, the largest being the $3.5 billion FAA award.

Overseas, CSC announced last year a five-year joint marketing agreement with British Telecom.

10. SI Capabilities Summary

Exhibit CSC-9 identifies CSC's major strengths and weaknesses. As a candidate in the commercial SI arena, it has strong experience and technical capabilities. It has a reputation in the federal market as an aggressive competitor and competent integrator. It has broad and strong technical and management skills. It is not committed to a single vendor's hardware and/or software products and, as a result of its recent acquisitions, now has commercial strategic consulting skills and enhanced vertical industry knowledge and experience.

EXHIBIT CSC-9

CSC Competitive Status

Strengths	Weaknesses
Federal SI experience	Geographic coverage
Technical strength	Commercial sales organization and experience
Product vendor independence	
Business consulting skills	

CSC's major weaknesses in the commercial market are its lack of commercial marketing experience and geographic sales and implementation coverage.

11. SI Marketing Strategy

CSC's commercial systems integration strategy is now focused in CSC Consulting and CSC Europe, as indicated in exhibit CSC-10.

EXHIBIT CSC-10

CSC SI Marketing Strategy

- Focus commercial growth on CSC Consulting and CSC Europe
- Focus on strategic consulting, then implementation
- Leverage federal experience
- Build on Partners' and CIG-Intersys' commercial experience

The marketing strategy appears to be built on leveraging the Index Group's strategic consulting reputation and programs. The Index Group has provided high-level education and consulting to both U.S. and European clients. It has a reputation for providing excellent client support in identifying strategic information systems requirements, developing strategic solutions that provide competitive advantage, and addressing mission-critical applications. This capability that Index Group provides is critical to CSC's marketing strategy, as it does not otherwise have access to a large commercial customer base or a large commercial sales force.

From an implementation point of view, CSC's credentials are extremely strong, as it has its federal skill base, CSC Partners, CIG-Intersys and its other acquisitions to call on. As other federal integrators have recognized, CSC will have to train its people to interact effectively with commercial customers, and to modify its federal implementation practices to work effectively in a commercial environment. CSC has, and continues to carefully select, acquisitions and partners to assist in this transition.

12. SI Customer Base

A number of the projects that CSC has won and is implementing are listed in Exhibit CSC-11. They are:

- Dade County Airport—As prime contractor, CSC has been responsible for the automated cargo information system for the airport and seaport of Miami, Florida. Responsibilities include design, implementation, integration, and facility management of the system, including software, communications equipment, and user procedures. The system connects 20 airlines, 15 brokers/forwarders, and the required federal agencies.

- U.S. Air Force—As prime contractor, CSC is providing systems integration services for the Air Force's new Stock Control and Distribution system. CSC's deliverables include the teleprocessing to support transportation and depot processing, retail and maintenance operations, inventory control points, and depot management.

- Cincinnati Gas and Electric—CSC is participating in all phases of the development of a new on-line customer service system that includes subsystems for order entry and tracking, billing, and financial records processing.

- AT&T—CSC maintains, enhances, and develops the circuit provisioning system used nationwide by AT&T to issue and track service orders, maintain an inventory of equipment and facilities, and design long-distance circuits.

- U.S. Treasury Department—CSC is the prime contractor for the design, integration, implementation, and operation and maintenance of the Consolidated Data Network which meets the needs of the various departments of the Treasury. At this date, the major user is the U.S. Customs Service, with the IRS just beginning to phase in. The packet-switched network has 21 backbone nodes, and by the mid-1990s will serve 7,500 locations worldwide and over 65,000 terminals.

- Kennedy Space Center—CSC is the prime contractor responsible for NASA/KSC's office automation system. This system supports all secretarial, professional, and management staffing at KSC.

- Weirton Steel—This five-year project, called IMIS (Integrated Manufacturing Information System), is focused on providing superior customer service through improved inventory control and scheduling and other state-of-the-art manufacturing techniques.

EXHIBIT CSC-11

Examples of CSC's Customers & Contracts

Company/Industry	Project Description
Dade County Airport	Automated Cargo Information System
U.S. Air Force	Stock Control and Distribution
Cincinnati Gas and Electric	Customer Services System
AT&T	Trunk Inventory and Control System
U.S. Treasury Department	Consolidated Data Network
Kennedy Space Center	Office Automation System
Weirton Steel	Manufacturing Information System
Massachusetts Water Resources Authority	Capital Projects Information System

- Massachusetts Water Resources Authority—This project involves the implementation of a major information system to monitor and control the progress of the large capital projects that the Authority will be implementing over the next several years to improve water and sewer systems in 60 communities.

13. Summary and Future Directions

It is clear that CSC has set its sights on becoming a major player in commercial systems integration, and is making significant investments to reach this goal. It has carefully selected and acquired firms that will help it achieve this goal. INPUT believes CSC's strategy, which is built around strategic consulting provided by the Index Group and its solid federal project management skills, is sound. It provides unique commercial consulting experience as well as access to a commercial client base—both capabilities that federal integrators generally lack.

Its string of carefully selected acquisitions provide it with the bridge that is necessary to convert federal experience and skills to commercial application implementation. However, CSC may not yet realize quite how difficult this step is.

INPUT believes that CSC will continue to acquire commercial firms that expand its geographic and vertical industry coverage. On the whole, CSC's strategy seems sound.

COMPUTER TASK GROUP, INC.
800 Delaware Avenue
Buffalo, NY 14209
(716) 882-8000

David N. Campbell, Chairman and CEO
John P. Courtney, President
Public Corporation, NYSE, Amsterdam Stock Exchange
Total Employees: 4,059 (12/90)
Total Revenue, Fiscal Year End 12/31/90: $243,859,000

The Company

Computer Task Group, Inc. (CTG), founded in 1966, is one of the largest providers of computer-related consulting, systems integration, and professional services to the commercial market in the U.S. Services available through CTG include consulting, systems analysis and design, programming, software conversions, education and training, systems operations, information engineering, imaging technology, networking systems integration, and industrial systems integration.

In June 1989, IBM made an equity investment in CTG, acquiring approximately 1.5 million shares of CTG preferred stock for $21 million.

- In conjunction with this transaction, the two companies agreed to levels of use of CTG's systems engineers on products for IBM and its customers.

- Revenues from IBM, which were about 5% of total revenue prior to this contract, reached $42 million in 1990, representing over 17% of CTG's total revenue.

CTG's mission is to be a recognized leader in the application of technology on behalf of its clients. The company has developed a strategic plan for the 1990s that includes the following:

- Continuing to focus sales and marketing efforts on industries where it has proven capabilities. These include discrete manufacturing, process manufacturing, banking and finance, insurance, and state and local government.

- Capitalizing on the strength of its branch network by continuing to broaden its geographic coverage with new field offices and developing project business and specialized capabilities within the branch operations.

- Expanding alliances, particularly in the international arena.

- Focusing on European operations, with a goal that they grow, at a minimum, at a level equal to the growth rate of the European marketplace.

- Continued focus on education for CTG consultants and engineers, as well as employee retention and recruiting of professionals with special skills.

CTG has pursued expansion by opening and/or acquiring field offices to attract and support clients. In the past five years, CTG has acquired ten firms ranging in size from $1 million to approximately $30 million in revenue. During 1990, CTG made two acquisitions (for $24 million plus contingent payments based on future performance) as follows:

- In October 1990, CTG acquired Rendeck International N.V. of Amsterdam, a European provider of professional services primarily to large mainframe users in manufacturing, financial services, and banking.

  - The acquisition expands CTG's business to include opportunities outside the U.S. Rendeck has large operations in the Netherlands, the U.K., and Belgium, plus a start-up operation in Denmark.

  - Rendeck had approximately 400 employees at the time of the acquisition and 1989 revenue of $30 million.

  - Rendeck has been renamed Computer Task Group Europe B.V. as of February 1991.

- In September 1990, CTG acquired Connolly Data Systems, Inc. of Lowell (MA).

  - Connolly provides integrated PC local-area network systems in the northeastern U.S.

  - Connolly had approximately 45 employees at the time of the acquisition and 1989 revenue of about $7 million.

  - The operations of Connolly have been merged into CTG's consulting segment.

CTG's stock is listed on the New York Stock Exchange and, effective February 1991, on the Amsterdam Stock Exchange.

CTG's 1990 revenue reached $243.9 million, a 5% increase over 1989 revenue of $233.0 million. Net income was $7.2 million in 1990, compared to net losses of $7.8 million in 1989. A five-year financial summary follows:

COMPUTER TASK GROUP, INC.
FIVE-YEAR FINANCIAL SUMMARY
($ millions, except per share data)

	FISCAL YEAR				
ITEM	1990	1989	1988	1987	1986
Revenue	$243.9	$233.0	$218.7	$170.1	$143.3
· Percent increase from previous year	5%	7%	29%	19%	24%
Income (loss) before taxes	$12.6	$(11.6) (a)	$10.8	$8.5	$9.3
· Percent increase (decrease) from previous year	*	*	28%	(8%)	25%
· Gross margin	5%	--	5%	5%	6%
Net income (loss)	$7.2	$(7.8)	$6.4	$5.1	$5.1
· Percent increase (decrease) from previous year	*	*	26%	--	26%
· Net margin	3%	--	3%	3%	4%
Earnings (loss) per share	$0.77	$(0.88)	$0.80	$0.66	$0.68
· Percent increase (decrease) from previous year	*	*	21%	(3%)	--

* *Not meaningful.*

(a) *Includes losses from closed businesses of $4.2 million and restructuring expenses of $13.2 million.*

CTG management attributes 1990 results to the following:

- Approximately $10 million of the revenue increase during 1990 was due to acquisitions. Also, revenue from IBM was $42 million.

- As a result of the restructuring program implemented during 1989, operating costs and expenses decreased from 87.8% of revenue in 1989 to 86.6% of revenue in 1990. Selling, general, and administrative expenses of $21 million, were 15% lower than 1989's expenses of $25 million.

During 1989, as part of its restructuring program, CTG eliminated certain positions and closed certain branches, resulting in charges to 1989 earnings of $4.2 million for losses on the closing of business units and $13.2 million for other restructuring expenses.

- Before restructuring expenses and losses on closed operations, CTG's 1989 operating income would have been $3.3 million (1.4% of revenue), compared to $10.2 million (4.7% of revenue) in 1988.

Revenue for the six months ending June 30, 1991 reached $141.4 million, a 22% increase over $115.7 million for the same period in 1990. Net income for the period declined 33%, from $3.6 million to $2.4 million.

- The major factor in CTG's revenue growth is the contribution from CTG Europe (formerly Rendeck). However, profit margins from this European business are lower than anticipated, due, to a great extent, to the impact of the recession in the U.K.

- CTG's systems integration client base primarily consists of firms in industries (such as steel, automotive, and pharmaceuticals) that have reduced their purchase of technology in the first half of 1991. Since many of CTG's systems integration costs are fixed, the company operated at profit margins of less than 2%, substantially below plan or historical achievement.

- Revenues from professional services business in North America grew $4.5 million over the first half of 1990; however, profit margins were lower than historic levels.

As of December 31, 1990, CTG had 4,059 employees, segmented as follows:

Marketing/sales	139
Professional staff	3,401
Field management and administration	392
Corporate	127
	4,059

- CTG currently has 4,188 employees throughout 65 offices in the U.S. and six foreign countries.

CTG professional services competitors include AGS Computers, Inc. (NYNEX), Computer Horizons, Keane, and the major accounting firms. Systems integration competitors include

Andersen Consulting, Electronic Data Systems, DEC, Computer Sciences Corporation, and Analysts International.

Key Products and Services

Approximately 83% of CTG's 1990 revenue was derived from its various professional services and 17% from commercial systems integration activities. A three-year source of revenue summary follows:

COMPUTER TASK GROUP, INC.

THREE-YEAR SOURCE OF REVENUE SUMMARY
($ millions)

	FISCAL YEAR					
	1990		1989		1988	
ITEM	REVENUE $	PERCENT OF TOTAL	REVENUE $	PERCENT OF TOTAL	REVENUE $	PERCENT OF TOTAL
Professional services - domestic	$190.9	78%	$189.8	82%	$178.1	82%
Professional services - international	12.9	5%	5.2	2%	5.2	2%
Systems integration	40.1	17%	38.0	16%	35.4	16%
TOTAL	**$243.9**	**100%**	**$233.0**	**100%**	**$218.7**	**100%**

The scope of professional services work performed by CTG ranges from specific, minor tasks of short duration, to large complex tasks that require multiple systems engineers for a long period of time. CTG offers consultants who are experienced in an industry application or technology, total project systems integration (often on a fixed-fee basis), and per diem services.

- Typically, CTG's professional staff augments and becomes part of the client's on-site software development team on a specific application or project.

- A majority of CTG's clients are large companies with multiple locations and substantial data processing operations. CTG currently has approximately 1,400 clients worldwide, including 85 of the Fortune 100 companies.

CTG classifies its services into three areas:

- Professional Services. The company's major source of revenue is derived from this type of service. CTG staff provides programming, systems analysis and design, project management, and other services in support of the client's data processing applications.

- Consulting. Examples of specialty areas in which CTG has experience include information engineering, data base consulting, telecommunications/network consulting, conversions, migration, and document management services.

- Commercial Systems Integration Services. These services are provided to the manufacturing and industrial markets through CTG Industrial Systems Integration (formerly Scientific Systems Services). Services provided include management consulting; concept and applications planning studies; Control-Spec™ functional specification and scope-of-work contracts; systems architecture services, including hardware selection, systems software evaluation and selection, application software, and communications; and project implementation.

CTG provides its commercial professional services through a network of branches and field offices.

- Services are provided primarily to discrete and process manufacturing firms. CTG also has clients in banking and finance, distribution, insurance, medical, telecommunications, utilities, state and local government, education/services, and transportation.

- Professional services are provided to clients on a contract basis, usually on a per diem rate. Services may be performed at the client's or one of CTG's 20 project development centers located throughout its branch office network. These centers allow CTG to handle a project entirely off-site, using either CTG computers or using communications links to the client's equipment.

- As a result of IBM's equity investment in CTG, the two companies are working together in the development and delivery of application solutions and services, as well as systems operations.

  - From the date of signing in June 1989 to year end, the number of systems engineers on projects with IBM increased 43%.

- CTG software development teams are working with IBM's Applications Solutions Division to produce new products. Manufacturing divisions such as the communications products group of IBM are also a major source of software development and documentation.

- As a business partner with IBM, CTG provides services to IBM at the local branch level.

- CTG will team with IBM's Systems Integration Division on a flexible staffing basis, or act as a subcontractor where IBM functions as prime contractor.

- CTG's largest contract to date involves systems operations for the Atlanta-based Bank South data center. Teaming with IBM, CTG is running the data center's operations under a 10-year contract. CTG and IBM have since signed systems operations contracts with Celanese Corporation and Riggs Bank.

CTG's Specialty Consulting Services, organized as CTG's National Extended Support Services (NESS), are closely allied with CTG's professional services business.

- Services are provided through four groups as follows:

  - The Communications Group focuses on voice and data communications and network management consulting. Future plans include strengthening its presence as a project consultant in the telecommunications field, especially within vertical markets such as manufacturing, health care, higher education, and finance; the design of on-line customer service applications; and network design and integration. This group was expanded in 1990 with the acquisition of Connolly Data Systems.

  - The Document Support Services Group, headquartered in Phoenix, provides written and on-line support materials and instructions, both for technical systems and end users.

    - Documentation clients include United Technologies, the State of Arizona, and IBM.

  - The Database Consulting Group plans, designs, and fine-tunes client data base applications.

  - The Migration Services Group, headquartered in Buffalo (NY), provides migration and conversion services for clients

moving from one hardware environment to another, or converting from one operating system or language to another. CTG has completed migration projects at more than 200 sites nationwide.

CTG Industrial Systems Integration (ISI), headquartered in Melbourne (FL) with over 200 employees, provides systems integration services in the manufacturing and industrial markets.

- ISI groups include: Consulting Services, Factory Automation, Logistics and Materials Handling Automation Systems, Manufacturing Automation Systems, Manufacturing Business Applications, and Process Automation Systems.

- During 1990, ISI received a $4.5 million contract to provide total manufacturing information systems to a new steel plant in Ontario (Canada). On another large project, ISI is partnering with IBM to develop manufacturing information systems for Burroughs Wellcome, an international pharmaceutical producer.

- ISI has performed projects for North Star Steel Co. (an automated process control system), Public Service of New Mexico (a coal-fed generating plant monitoring system), Baxter Healthcare Corporation (a warehouse control system), and National Steel Corporation (a caster control system).

- Profimatics, an ISI subsidiary located in Thousand Oaks (CA) with 40 employees, provides IBM and DEC VAX-based application software products for petrochemical plants and oil refining.

The CTG Institute for Technical and Management Training in Buffalo provides in-depth training for CTG staff. Some 30 technical and 20 marketing and management courses are offered. INPUT estimates that over 1,500 employees attend these classes on an annual basis. Formal training courses are also offered at selected national branch offices.

Industry Markets

CTG's target markets include large organizations in discrete and process manufacturing, financial services, insurance, and state and local government.

- Eighty-five of the Fortune 100 and 237 of the Fortune 500 are CTG clients.

- Over 90% of revenue is derived from repeat business with existing clients.

CTG's client base is segmented approximately as follows:

Discrete manufacturing	32%
Process manufacturing	23%
Services	16%
Banking and finance	9%
Insurance	5%
Distribution	5%
State and local government	3%
Other	7%
	100%

Geographic Markets

Approximately 93% of CTG's 1990 revenue was derived from the U.S., 5% from Europe, and 2% from Canada. A three-year source of revenue summary follows:

COMPUTER TASK GROUP, INC.
THREE-YEAR SOURCE OF REVENUE SUMMARY
($ millions)

	FISCAL YEAR					
	1990		1989		1988	
ITEM	REVENUE $	PERCENT OF TOTAL	REVENUE $	PERCENT OF TOTAL	REVENUE $	PERCENT OF TOTAL
U.S.	$227.1	93%	$223.6	96%	$209.5	96%
Europe	12.9	5%	5.2	2%	5.2	2%
Canada	3.9	2%	4.2	2%	4.0	2%
TOTAL	**$243.9**	**100%**	**$233.0**	**100%**	**$218.7**	**100%**

CTG has 65 offices in the U.S., Belgium, Canada, Denmark, England, Germany, and the Netherlands.

COMPANY PROFILE

Computer Task Group (CTG)

1. Key SI Contacts

Mr. David N. Campbell
Chairman & CEO
800 Delaware Avenue
Buffalo, NY 14209

Mr. Jack Courtney
President
800 Delaware Avenue
Buffalo, NY 14209

Mr. Vince Lamb
President
Scientific Systems Services (SSS)
475 South John Rodes Blvd.
Melbourne, FL 32904

2. Description of Principal Business

Computer Task Group (CTG) is a leading provider of computer-related professional services to the commercial marketplace. CTG designs, builds, implements, and in some cases maintains information systems. The company's services consist of consulting, systems analysis, systems design, systems integration, and programming. Areas of special expertise include; business systems programming, engineering, scientific, process control, and automated software conversions.

CTG makes extensive use of software automation in its professional services contracts. The scope of professional services work performed by CTG ranges from specific, minor tasks of short duration, to large complex tasks that require larger numbers of systems engineers for extended time periods. Typically, CTG's professional staff augments and becomes part of the client's on-site software development team on a specific application or project. However, in recent years CTG has established approximately 20 Software Development Centers to support off-site development and implementation in support of client projects.

In 1988 CTG will report total revenues of $218 million, an increase of approximately 28% over the $170 million reported for 1987. This follows a 19% increase of $27 million in 1987. Overall, CTG has shown double-digit growth rates since the early 1980s, with only occasional downturns in profit.

Much of CTG's growth in revenue and geographic coverage can be attributed to acquisitions. There have been at least 14 since 1985. Acquisitions candidates are selected to augment specific skill areas and to gain geographic coverage. The purchase of Scientific Integrated Systems Services for approximately $11 million in January of 1988 was significant in boosting CTG's presence in the systems integration market. The subsidiary, renamed Scientific Systems Services (SSS), specializes in integrated computer systems for manufacturing.

CTG serves both the vertical and cross-industry markets. A summary of its primary focus is contained in Exhibit CTG-1.

EXHIBIT CTG-1

CTG's Primary Market Targets

Cross-Industry Markets	Vertical Markets
Business Applications Programs	Banking (All Aspects)
Systems Analysis and Design	Brokerage/Insurance
Process Control	Manufacturing
Software Conversion Services	Telecommunications
Packaged Software Support	Public Utilities

3. Company Competitive Position

CTG is one of the largest providers of professional services to the commercial market in the U.S. Its primary strategy has been to be a customer's single source for systems design and programming support, made possible by a staff of over 2,600 systems engineers.

CTG's internally developed software design and development tools enable it to compete against larger firms for SI projects. CTG is a recognized leader in the systems conversion business and has very strong abilities in the DOS-to-MVS conversion market.

CTG targets its services primarily to large manufacturing, industrial automation, financial services, and telecommunications firms with large data processing operations. CTG clients include over 75 of the Fortune 100 companies, and over 80% of the firm's new professional services contracts come from the existing client base. Over 30 of CTG's clients have billings in excess of $1 million with CTG.

CTG will post systems integration revenues for 1988 in excess of $35 million dollars, approximately 16% of the total revenue stream. This represents a seven-fold increase over reported SI revenues of approximately $5 million in 1987. While not in a league with today's major players, this represents a significant revenue stream for a company that only entered the business three years ago. The revenues have been generated on about 15 commercial projects with an average size in excess of $2 million, and CTG anticipates its participation in the market to grow at a rate in excess of 35%.

4. Markets Served

As indicated in Exhibit CTG-1, CTG's general professional services business participates in virtually all significant vertical, and a significant number of cross-industry markets. The current targets for systems integration are somewhat more limited. CTG is focusing on:

- Process manufacturing automation
- Materials handling (cross-industry)
- Communications
- Manufacturing/robotics

CTG's focus in these areas is stimulated by its belief, in addition to being growing market segments for SI, that these areas will permit them to leverage off of its established client base. Although not specifically mentioned by CTG, INPUT believes that these areas are well suited to the strengths of its recently acquired subsidiary, Scientific Systems Services (SSS).

5. Recent Events of Interest

As mentioned previously, CTG has been growing substantially through acquisition. In addition to Scientific Systems Services, CTG has made several other acquisitions since 1986 that will strengthen its position in systems integration.

- CTG acquired Telecommunications Management Corporation in late 1988. This organization has particular expertise in voice networks and network management.

- A significant investment was made in Analysts International, Inc. in January of 1987. CTG claims that the deal was primarily for investment purposes.

- Maxima Computer Management Consultants, Inc. was purchased in October 1986, and should give CTG access to the federal government, banks, and additional manufacturers.

- Creative Computing was acquired in August 1986 and should help strengthen CTG's data base and data communications expertise.

Another event that has some importance was the dramatic decrease in profitability which occurred between 1986 and 1987. CTG management states that much of the slowdown is attributed to high levels of non-billable time of the professional staff in foreign operations. CTG also cited an investment of $400,000 in new branch operations in the U.K. as a reason for lower profits.

It appears however, that there has been a significant recovery in 1988 that should allay any fears that there is a fundamental flaw in CTG's market or delivery strategy.

6. SI Organization

CTG operates with a lean corporate and administrative staff with only slightly over 400 of the total staff of approximately 4,000 employees listed as "non-professional." Headquarters provides forecasting, strategy development, and financial management while leaving much of the other administrative responsibility to local branches, which are linked to headquarters via a PC/mainframe information network. CTG currently has over 70 offices.

CTG's Institute for Technical and Management Training in Buffalo provides in-depth training for CTG staff. Thirty technical and 20 marketing and management courses are offered. In addition, all new employees get a six-week course on CTG's Systems Engineering Development Programs. INPUT estimates that over 1,500 employees attend these classes on an annual basis.

The delivery of systems integration services is focused primarily in Scientific Systems Services (SSS) which CTG operates as a subsidiary reporting to Jack Courtney, President of CTG. The revenue of this organization is close to 100% SI. Additional SI work is done by other matrixed units of CTG, such as the Corporate Projects Office (CPO) and other specialty business groups. In general the responsibilities are divided as indicated in Exhibit CTG-2. The only totally centralized function is SI contract approval.

EXHIBIT CTG-2

Centralization/Decentralization of SI Business Function Computer Task Group

Responsibilities	Commercial	Federal
Strategy and long-range planning	B	N/A
Marketing and promotion	B	N/A
Account management/ sales	D	N/A
Contract review/approval	C	N/A
Project management/ control	B	N/A
Implementation/development	D	N/A
Hardware/software acquisition	D	N/A
Systems operations (if applicable)	D	N/A

C = Centralized, D = Decentralized, B = Both

CTG currently has a full-time commercial SI staff of approximately 250. In addition, it estimates that at any given time there are at least 50 other professionals assigned to SI projects. The breakdown of staff between various skill requirements is typical of systems integration vendors whose primary business has been professional services. This is summarized in Exhibit CTG-3.

EXHIBIT CTG-3

Distribution of SI Personnel
Computer Task Group

Capability	Percent
Management, strategy, planning, marketing	5
Legal/contract administration, finance	2
Project management and administration	5
Design/development/implementation	70
Hardware/software evaluation/acquisition	10
Hardware engineering	3
Sales	5

7. SI Business Objectives

CTG has maintained a consistent strategy of being the customer's single source for design and programming support. This strategy has led the company to the development of broader professional services capabilities, and moved CTG into the position of a "full-service" provider. As a full-service provider and rapidly emerging player in the SI marketplace, CTG has adopted two primary objectives:

- Derive revenue and increased profit margins from the special capabilities provided as a systems integrator
- Respond to existing customer demands for buying complete solutions

CTG recognizes that the key to increasing profit margins is through specialization. By specializing CTG is able to command premium rates for its staff. In essence, systems integration is one of the several professional services specialty areas through which CTG hopes to achieve its profit objectives.

8. SI Capabilities Evaluation

CTG's primary strength lies in its professional services capabilities. Over 80% of its staff is college educated, and almost all of the systems engineering staff have skills in data base and communications technologies. By its own evaluation CTG ranks high in business consulting, design integration, project management, and software development. The following presents INPUT's assessment.

- Business Consulting - While not at the level of some of the competition in a broad range of industries, this is a strength for CTG, particularly in manufacturing-related projects.

- Design Methodology/Design Integration - Although CTG does not have a packaged methodology, it has made extensive use of automation to support the design and development process. This is a significant strength.

- Project Management - Again, CTG has utilized technology and training of personnel to develop an effective capability. While the approach is effective, it has not been applied to many very large projects. Given the aggressive approach to the market, this capability will undoubtedly be put to the test in the very near future.

- Software Development - CTG is state of the art in this area. Its use of advanced CASE tools and software development aids may be the best in the industry, and it appears to be making the educational and developmental efforts necessary to maintain that leadership position.

- Education, Training, and Documentation - CTG possesses these capabilities in house and by INPUT's estimate probably is above average in capability. The company's use of automated software development tools should significantly contribute in the documentation area.

- Packaged Applications and Systems Software - CTG offers no packaged applications software to INPUT's knowledge. There are a few vertical markets where the company has experience in this area. Also, SSS undoubtedly brings some products and capabilities from its niche market. However, INPUT believes that this is an area where CTG could use significant strengthening. In the area of systems software, CTG has many important alliances.

- Standard Computer Hardware - CTG has extensive working experience with virtually all lines of IBM and DEC hardware. Other environments with which it has experience include: Honeywell, CDC Cyber, Prime, Data General, Harris, and Hewlett-Packard. In this area it has a strong portfolio to offer.

- Communications Hardware - As in the case of computer hardware, CTG relies primarily on alliances and partners in the area of communications. It is INPUT's position that the company does not have the strengths or experience in communications that it has assembled in the computer hardware area.

- Network Management and Operations - Over the past 18 months CTG has been building an internal data communications group to bolster its capabilities in this area. In addition, the acquisition of Telecommunications Management, Inc. in December 1988 will supplement the growing capability in data with voice expertise.

- Service & Repair, Software Maintenance - CTG has virtually no capability in the area of hardware service and repair and relies on alliances in that area when necessary. Obviously the company does provide software maintenance, although this is not a major marketing attribute for it in systems integration.

9. SI Strategic Alliances

CTG recognizes the need to utilize alliances to provide the total solution to the customer and to bolster its general capabilities. It utilizes both long-term agreements and contract-by-contract arrangements to accomplish these objectives. CTG's alliances tend to break down as follows:

- Technology-based alliances tend to be long-term in nature. They result from the need to remain state of the art in the application of particular technology that can be utilized in many client situations.

- Solution-specific alliances tend to be formed on a contract-by-contract basis where the need of a client is unique, and there appears to be no applicability of the need to a larger target market.

The majority of CTG's alliances have been formed with hardware and systems software vendors. The primary hardware alliances are with DEC and IBM; while other vendor alliances provide capabilities in 4GL, expert systems, and relational data base management systems. Noticeably absent are longer term arrangements with communications or applications software suppliers.

A summary of CTG's alliances is contained in Exhibit CTG-4.

EXHIBIT CTG-4

Examples of CTG's Key Alliances

Hardware	IBM Digital
Systems Software	Cullinet Transform Logic Cortrans Miles Burke Aion Corporation DACOM Relational Technology

10. SI Capabilities Summary

Compared to other systems integration vendors, CTG has developed above average capabilities to participate in the market. This is particularly true in the middle of the systems integration life cycle, overall design through implementation. As mentioned in the SI capabilities evaluation, CTG's strengths are not in front-end business consulting or follow-on maintenance activities. In most areas where there appear to be some weaknesses, CTG has developed effective alliances or is rapidly on its way to building or acquiring an internal capability to meet the need. A good example is in data communications and network management where as little as two years ago, CTG had below average capabilities. The acquisition of Telecommunications Management, Inc. and the internal development of a Data Communications Group are rapidly closing that gap.

Other capabilities that work in CTG's favor as a systems integration vendor include:

- The Institute for Technical Management Training
- The Corporate Projects Office, established in 1985 to address large-scale systems development

Finally, CTG's leading-edge use of technology in the design, management, and implementation of systems gives it a competitive advantage that few other integrators from the professional services side can offer.

11. SI Marketing Strategy

CTG carries its philosophy of being a full-service provider into the systems integration marketing effort. While the company clearly does not have all the capabilities to support that position in house, it has made great strides in recent years through acquisitions and alliances to cover the approach successfully.

CTG stresses the importance of delivering a competitive advantage to its customers through the application of technology. It has focused its SI marketing efforts on selected industries and cross-industry markets (See Section 4).

Its large professional services client base and the large number of geographically dispersed offices allow CTG to approach the market on both a proactive and opportunistic basis.

- Responding to needs from existing clients
- Proactively selling SI services through the large number of branches

Other facets of CTG's marketing approach are described below and summarized in Exhibit CTG-5.

- Competitors - As would be expected, CTG sees Andersen Consulting, EDS, Digital Equipment, and Computer Sciences Corporation as major competitors in the systems integration marketplace. It is somewhat surprising that IBM is not on the list. As CTG's reputation in the market grows, it will be competing with the major players in the market.

- Positioning - To its customers, CTG presents itself as an organization that can combine management and consulting skills with proven and extensive implementation capabilities to provide state-of-the-art solutions. It points to its financial track record and portfolio of specialized skills as a key asset in selling contracts.

- Promotion - CTG utilizes public seminars, direct mail, client referrals, and trade shows as key avenues to spread the word about its capabilities in systems integration. To date it has done little or no advertising in general or industry trade publications. The company finds public seminars to be most effective, followed by client referrals and trade shows.

EXHIBIT CTG-5

CTG's SI Marketing Strategy

- Opportunistic approach
  - Selling through branches
  - Use of corporate project office
- Positioning: full-service provider
  - Selected vertical markets
  - Functional and technical specialities
- Customer benefits
  - Competitive advantage
  - Advanced technology (systems software)
  - Reduced risk (fixed price offerings)
- Focused targets
  - Financial services
  - Industrial automation
  - Telecommunications
  - Systems conversions

Overall, CTG's marketing strategy has been evolving quite rapidly during the past three years. INPUT anticipates an increasing level of proactive selling in its targeted markets during the coming year, as well as an increased emphasis on systems integration as a tool for achieving competitive advantage through the application of technology.

12. SI Customer Base

Only 18 months ago, there would have been a limited number of systems integration customers to talk about. As of this writing, CTG has completed at least 15 SI projects. These clients (mentioned in Section 11) have come from both the existing customer base and newly solicited clients, where CTG seems to be getting about 40% of its SI contracts. Some clients and projects are profiled in Exhibit CTG-6.

EXHIBIT CTG-6

Computer Task Group
SI Project Examples

Company	SI Project
North Star Steel	Plant-wide support system
Public Service of NM	Power plant monitoring system
Unisys	Air Force weather station support
UPI	New facilities development
Baxtor Travenol	Warehouse automation
Norton	Furnace monitoring system
Cleveland Clinic	Medical management system
USX/Pohang Steel	Data center consolidation

One of the SI projects currently underway within CTG is for the Cleveland Clinic. The project will involve 60 to 70 people to develop an integrated medical management system. The project is in the range of $25 million and will utilize specially licensed or acquired state-of-the-art estimating, planning, and development tools to reduce the overall project risk. This project and the USX/Pohang Steel project are two of the largest undertaken by CTG thus far, and will provide additional insight into CTG's ability to compete in the large project marketplace.

13. Summary and Future Directions

Although CTG does not have the in-house capability to offer the full range of SI services, the company has formidable capabilities and is moving rapidly to cover any areas of weakness.

CTG has a superior set of in-house developed system software tools for project management, software development, and conversions. In addition, the company's broad geographic coverage in the U.S. lessens dependence on the financial climate of a particular industry or region.

The large well-trained systems engineering staff is a formidable asset that only the largest players including Andersen Consulting, IBM, DEC, EDS, etc. can match. While finding and developing these individuals is expensive, CTG seems to have put together a strong organization with superior qualities.

CTG's penetration of Fortune 500 firms (leading banks and financial services firms, and top utilities, and telecommunications companies) indicates a solid sales capability and account control mechanism, all for a company that is not widely known and until recently with a limited set of SI capabilities.

Finally, CTG has recognized areas of weakness in its delivery capabilities for SI and is filling them through acquisitions and alliances.

All of these assets support the rapid expansion of CTG's systems integration business. The only areas of weakness appear to be in applications software, where to INPUT's knowledge CTG has few packages and a limited set of alliances.

A second area that will require some work is marketing. Market presence and image are rapidly becoming prerequisites for success in systems integration. While CTG has a strong image as a contract software developer, it will need to pay more attention to making itself known as a systems integrator in the marketplace. INPUT believes that the key will be to build a track record of reference accounts that support the firms strategy.

To be a major player, INPUT believes that CTG should move in several areas:

- It must continue to fill voids in its portfolio of SI capabilities.
- CTG needs to broaden its market focus to include more SI prospects, which means acquiring more vertical-industry expertise at the consulting and applications package levels, and increasing the depth of expertise in markets already served.
- The company also will need to more actively sell SI at the branch level.

Overall, CTG is a player who is likely to be in the majors within a few short years. It is a firm to be watched. Assuming that it can afford to make some of the investments suggested above, the future looks bright.

ELECTRONIC DATA SYSTEMS CORPORATION
7171 Forest Lane
Dallas, TX 75230
(214) 604-6000

Lester M. Alberthal, Jr., Chairman, President, and CEO
Wholly Owned Subsidiary of General Motors Corporation, GM Class E Stock, NYSE
Total Employees: 61,000 (12/90)
Total Revenue, Fiscal Year End 12/31/90: $6,108,800,000
Non-GM Information Services Revenue: $2,787,500,000

The Company

Electronic Data Systems Corporation (EDS), founded in 1962, is a leading information and communications services company providing information processing, consulting, systems management, systems integration, and communications services to the financial, insurance, commercial, and communications industries domestically and internationally and to state and federal government. These markets include banking; credit unions; property, life, health, and casualty insurance; distribution; manufacturing; transportation; retail; and energy.

- EDS currently has 66,000 employees and more than 7,400 clients in all 50 states and 28 other countries.
- EDS' largest client is General Motors Corporation (GM) and its subsidiaries, which contributed approximately 53% ($3.23 billion) to EDS' 1990 revenue.

EDS, acquired by GM in October 1984, operates as an independent subsidiary of GM. EDS' performance forms the base from which any dividend on the GM Class E common stock will be declared. These earnings include income earned from services provided to GM and its other subsidiaries.

EDS' total 1990 revenue reached $6.1 billion, a 12% increase over 1989 revenue of $5.5 billion. Net income rose 14%, from $435.3 million in 1989 to over $496.9 million in 1990. A five-year financial summary follows:

ELECTRONIC DATA SYSTEMS CORPORATION
FIVE-YEAR FINANCIAL SUMMARY
($ millions, except per share data)

	FISCAL YEAR					
ITEM	1990	1989	1988	1987	1986	CAGR
Revenue	$6,108.8	$5,466.8	$4,844.1	$4,427.7	$4,366.0	9%
· Percent increase from previous year	12%	13%	9%	1%	27%	
Income before taxes	$788.7	$680.3	$589.4	$524.3	$464.0	14%
· Percent increase from previous year	16%	15%	12%	13%	28%	
· Gross margin	13%	12%	12%	12%	11%	
Net income	$496.9	$435.3	$384.1	$323.1	$260.9	17%
· Percent increase from previous year	14%	13%	19%	24%	37%	
· Net margin	8%	8%	8%	7%	6%	
Earnings per share (a)	$2.08	$1.81	$1.57	$1.33	$1.07	18%
· Percent increase from previous year	15%	15%	18%	24%	35%	

(a) Restated to reflect a 2-for-1 stock split declared on February 5, 1990.

A further breakdown of 1990, 1989, and 1988 revenue follows ($ millions):

	FISCAL YEAR		
REVENUE SOURCE	1990	1989	1988
Systems and contracts			
· Outside customers	$2,787.5	$2,384.6	$1,907.6
· GM and subsidiaries	3,234.2	2,988.9	2,837.0
	$6,021.7	$5,373.5	$4,744.6
Interest and other	$87.1	$93.3	$99.5
TOTAL	**$6,108.8**	**$5,466.8**	**$4,844.1**

EDS management attributes 1990 revenue increases to the following:

- Business with non-GM customers rose 17% during 1990 and accounted for 47% of total revenue, compared with 45% of total revenue in 1989 and 41% of total revenue in 1988.

Revenue for the nine months ending September 30, 1991 reached $5.01 billion, a 14% increase over $4.4 billion for the same period in 1990. Net income rose 12%, from $363.5 million to $407.1 million. Revenues from EDS' non-GM business was up 26% in the third quarter and accounted for nearly 51% of total revenues--the highest percentage since GM acquired EDS in 1984.

During 1989, EDS restructured its operations into 38 strategic business units and 49 strategic support units. During 1990, EDS expanded to 39 strategic business units. The chart below separates EDS' revenues by current major business segments:

ELECTRONIC DATA SYSTEMS CORPORATION
SOURCE OF REVENUE BY INDUSTRY GROUP
($ millions)

	FISCAL YEAR			
ITEM	1990	1989	1988	1987
Manufacturing	40%	41%	44%	48%
Financial	14%	15%	14%	10%
Government	10%	11%	12%	12%
Insurance	5%	6%	7%	7%
International	18%	15%	15%	14%
Other	13%	12%	8%	9%
TOTAL	**100%**	**100%**	**100%**	**100%**

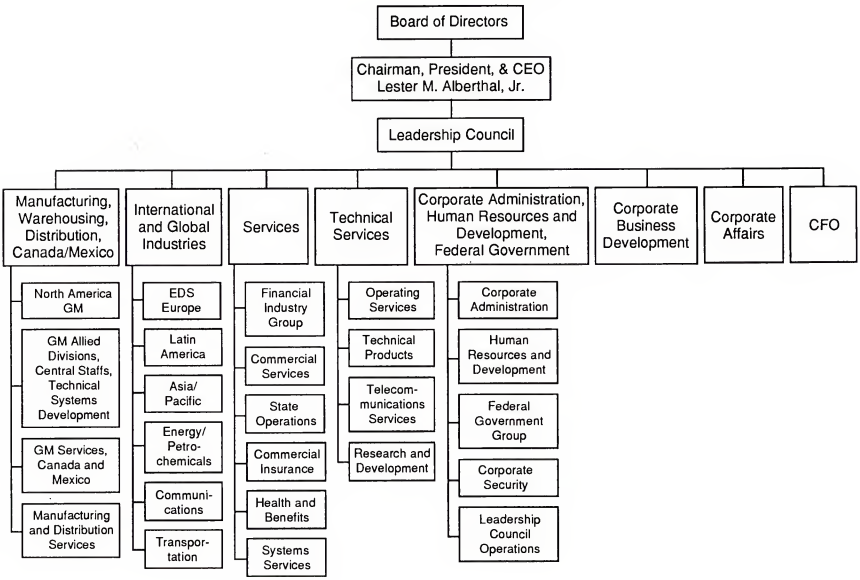
The company's current organization is summarized in the exhibit.

- EDS also holds a 20% equity in Hitachi Data Systems Corp., a joint venture with Hitachi Ltd. Formed in 1989, the joint venture markets and distributes Hitachi PMC mainframe and peripheral equipment.

Recent acquisitions announced by EDS include the following:

- In November 1991, EDS completed the acquisition of McDonnell Douglas Systems Integration Company (MDSI).
  - MDSI, with over 2,000 employees and worldwide revenue of $398 million in 1990, provides systems integration, professional services, and CAD software products.

EXHIBIT
Electronic Data Systems



- Included in the MDSI acquisition are the Unigraphics and Graphics Design System (GDS) product lines and Shape Data, a solids modeling research, development, and engineering company based in Cambridge, England.

- In October 1991, EDS acquired the assets of Creative Software Systems, Inc. (CMS) of Toms River (NJ).

  - CMS provides information management services to the cable TV industry, including subscriber and financial management systems, bill processing, and mailing services.

  - CMS serves more than 150 multiple-system operators and independent operators worldwide.

- In August 1991, EDS finalized its acquisition of SD-Scion, an international systems integration, professional services, and processing firm based in the U.K.

  - SD-Scion, with approximately 5,000 employees and 1990 revenue of about $406 million (U.S.) now operates as a subsidiary of EDS.

- In June 1991, EDS completed the acquisition of Infocel, Inc. of Raleigh (NC). Terms of the purchase were not disclosed. EDS originally acquired a 30% share of Infocel in March 1990.

  - Infocel, with 131 employees and fiscal 1990 revenue of $15.9 million, provides turnkey systems and associated professional services to local governments. The privately-held company has over 400 customers in 38 states and five Canadian provinces.

  - Infocel will operate as a wholly owned subsidiary of EDS, reporting through EDS' State Operations Division, which is responsible for local government business.

- In March 1991, EDS acquired the assets of Operator Assistance Network (OAN) of Van Nuys (CA) from Com Systems. The acquisition expands EDS' services for the communications industry.

  - OAN provides billing and collection services, specialized data processing, and receivables financing to interexchange carriers, operator service providers, information service providers, and payphone owners.

- OAN has approximately 200 customers and $250 million in annual billing and collection transactions.

- In February 1991, EDS acquired the Long Distance Billing System, a customer management and billing system for telecommunications firms, from Lubbock Data Center, Inc. of Lubbock (TX).

- In October 1990, EDS acquired Appex Corporation of Waltham (MA). Terms of the purchase were not disclosed.

  - Appex provides software products and processing services to the cellular industry for use in customer management and billing, caller authorization, fraud prevention, and intercarrier settlement.

  - Appex has been renamed EDS PCC and now operates as a wholly owned subsidiary of EDS within the Communications Industry Division.

Major competitors of EDS by product/service area include the following:

- Insurance claims processing: Computer Sciences Corporation (CSC), Policy Management Systems Corporation, and Unisys.

- Government systems: CSC, Martin Marietta, PRC (Black & Decker), and Boeing Computer Services

- Credit unions: Control Data Credit Union Services and FIserv

- Remote computing services: Boeing Computer Services, Martin Marietta, CSC, and GE Information Services

- Systems integration: Andersen Consulting, Scientific Applications International, BDM International, Unisys, and IBM

- Systems operations/facilities management: Andersen Consulting, CSC, and Systematics

Key Products and Services

EDS' 1990 systems and contracts revenue was derived approximately as follows:

ELECTRONIC DATA SYSTEMS CORPORATION
1990 SOURCE OF REVENUE
($ millions)

SERVICE	U.S.	INTERNATIONAL	TOTAL
Systems Management	$3,424.2	$821.3	$4,245.5
Systems Integration	786.7	100.2	886.9
Development	598.6	130.6	729.2
Consultative	126.0	33.7	159.7
TOTAL	$4,935.5	$1,085.8	$6,021.3

EDS services are offered as follows:

- Systems Management:
  - Facilities Management (FM): EDS assumes virtually all of the data processing and communications requirements for the customer over a multiyear term. Responsibilities include the design and implementation of business information systems, the staffing of the data processing functions, the development and maintenance of necessary software, and the operation of all computer activities.
  - Fiscal Agent: EDS is responsible for all data processing functions as well as other administrative duties. These duties may include processing and paying claims as well as ensuring proper coordination of benefits.
  - Processing Services: EDS provides data processing services from an EDS data center billed on a predetermined minimum monthly basis, usually based on the number of transactions.
- Systems Integration: EDS designs, implements, and installs the appropriate combination of hardware and software integrated into a total system designed to fulfill the customer's processing and communications requirements.
- Development (Professional Services): EDS provides system design, custom/contract programming, and joint development service.
- Consultative (Professional Services): These services include strategic and tactical information technology assessment and planning; industry-specific and conversion consulting; business process reengineering; and education and training.

A summary of EDS' products and services by industry market follows:

Government:

EDS provides systems management and systems integration services to federal, state, and local government customers.

Recent contract examples include the following:

- During the first quarter of 1991, EDS won a recompetition for a five-year contract to operate and maintain the driver licensing and motor vehicle registration system for the state of Massachusetts.

- During the second quarter of 1991, EDS was awarded federal contracts with the Defense Communications Agency (to provide technical, managerial, and operation expertise).

- During the fourth quarter of 1990, EDS won a five-year contract to design, develop, implement, and operate the Automated Fingerprint Image Reporting and Match (AFIRM) System for the Los Angeles County Department of Public Social Services.

- In September 1990, EDS received a five-year, $40 million contract to design and operate a parking enforcement management system for the city of Chicago.

- In August 1990, EDS won a five-year contract to provide life cycle management services of Standard Army Management Information Systems for the Army's Information Systems Software Center at Fort Belvoir (VA). Maximum life cycle value is approximately $116 million.

- In July 1990, EDS signed the Small Multi-user Computer (SMC) contract with the U.S. Army to provide multiuser microcomputer systems and services to the Army, Navy, and Defense Logistics Agency. Depending on orders, the value of the contract could reach $700 million or more.

EDS currently provides Medicaid claims-processing services for 17 states and processes more than two-thirds of all Medicaid claims submitted in the U.S. Medicaid contract awards include the following:

- EDS has a five-year $77.9 million contract with Georgia's Department of Medical Assistance to provide claims processing and management.

- In April 1991, EDS was awarded a two-year (plus one two-year option), $20 million contract with the Indiana Department of Public Welfare to underwrite and operate the state's Medicaid Management Information Systems (MMIS).

- Other Medicaid claims-processing clients include California (Department of Health Services), Kansas (Department of Social and Rehabilitation Services), and Texas (Department of Human Services).

As a result of the acquisition of Infocel, EDS also provides a range of UNIX-based turnkey systems to state and local governments, schools (K-12), and public-safety departments. Current system offerings include:

- Financial Management System
- Public Administrative System
- Geographic Information System
- Geographic Reporting and Analysis System
- Utility Billing and Collections System
- Systems Design and Productivity Aids
- SchoolPlus School Administration System
- Public Safety System.

Banking and Finance:

EDS offers financial institutions technology-based business solutions through systems integration, facilities management (systems operations), and service bureau operations. The company's products and services include data processing, communications, information management, back-office, bank card, and payment services. The company currently serves more than 5,000 banks, credit unions, and savings institutions worldwide.

Recent contract awards from financial customers include the following:

- During the second quarter of 1991, EDS signed a systems management contract with Signet Banking Corp. of Richmond (VA) whereby EDS will convert Signet's existing applications into an integrated system and manage the system engineering, computer operations, and network services.

- In early 1991, EDS was awarded a five-year contract by The River Forest Bancorp (Chicago) to provide full-service processing for its seven banks.

- During 1990, EDS reached a 10-year, $450 million agreement with First Fidelity Bancorporation of Lawrenceville (NJ) to convert the bank's applications into a unified companywide platform, consolidate the bank's data center operations at a single site, and manage that facility.

- EDS also reached a 10-year agreement with First USA Merchant Services to provide a complete line of card-processing services.

Presently, EDS processes information for more than 12 million credit union members and more than 2,300 credit unions.

- During the second quarter of 1991, EDS signed systems management contracts with the Motorola Employees Credit Union-West (Scottsdale, AZ), the District Government Employees Credit Union (Washington, D.C.), the Washington State Employees Federal Credit Union (Olympia, WA), and the Orange County Federal Credit Union (Santa Ana, CA).

- In April 1991, EDS was awarded an eight-year systems management contract with Texins Credit Union (Richardson, TX) for large-scale sytems development of enhanced teller security, cash control, ATM administration, and forms control systems.

- In early 1991, EDS also won a five-year systems managment contract with the Denver Credit Union Group.

Major bank processing applications include the following:

- EDS' Integrated Financial System (IFS) uses a common data base to provide a range of automated processing options--from retail lending and deposits, to mortgage banking and commercial lending.

- The Deposit System allows a financial institution to offer a variety of deposit products to commercial and individual customers--including checking accounts, savings accounts, certificates of deposit, tiered interest rate money market accounts, and IRA and Keogh accounts.

- The Loan System processes the financial institution's consumer, commercial, and mortgage loan portfolios.

- The Financial Accounting and Reporting System provides general ledger, budgeting, financial accounting, and cost-accounting capabilities for financial institutions. Asset and

liability management systems, planning and forecasting systems, and other financial management services are also provided.

- The Customer Information System integrates all of a financial institution's banking applications into a single system and provides an information data base and the accounting and audit controls necessary to maintain the data base.

Financial transaction processing applications, generally available both domestically and internationally, include the following:

- The Card Processing Service is a transaction processing service for the financial and retail industries. The service supports credit, debit, and private-label card programs.

- The Merchant Accounting Service provides merchant transaction processing to the financial and retail industries. Merchant base profitability assessments are also provided.

- The 1stAdvantage Program offers an integrated service for credit card issuance, customer service, and merchant account servicing.

Back-office services include proofing and encoding, bulk statement filing, statement mailing, and truncation to accommodate additional check processing needs of customers. Other services include account reconciliation processing, document storage, filming, stamping, archival storage, and statement rendering.

Microcomputer software and related products permit remote access to EDS' mainframes. Products are available for asset/liability management, financial management information, loan origination and document printing, loan loss control, safe deposit box management, call reporting, back-up withholding (1099s), general ledger, fixed-asset accounting, and planning and budgeting.

EFT services are provided to financial institutions and retailers through The Exchange and MPACT networks.

- The MPACT Network, established in 1979, includes approximately 1,300 MPACT ATMs and approximately 2.5 million MPACT debit cards issued to customers of member financial institutions located primarily in Texas, Louisiana, Arkansas, New Mexico, Oklahoma, West Virginia, Mississippi, and Massachusetts.

- MPACT has interface relationships with 51 other regional and national networks (such as CIRRUS, PULSE, American Express, HONOR, and DISCOVER) which allow approximately 50

million additional holders of debit cards access to the MPACT Network and makes over 70,000 additional ATMs available to MPACT cardholders.

Insurance/Medical:

EDS provides FM and processing services and turnkey systems to commercial insurance companies and Blue Cross/Blue Shield organizations (where state money is not involved).

- During 1990, EDS processed over 450 million life, health, and casualty insurance claims, compared to 391 million claims in 1989.

Recent contract awards include the following:

- During the second quarter of 1991, EDS extended its 22-year association with Blue Shield of California with an agreement to install advanced membership and claims systems and a management data base information reporting system.

- Also in the second quarter, EDS unveiled a new, integrated medical information system for HMOs and large group practices. The system was designed by InterPractice Systems, a joint venture between EDS and the Harvard Community Health Plan of Brookline (MA).

In March 1990, EDS and American International Healthcare, Inc. (AIH), a subsidiary of American International Group, announced plans to jointly develop and market managed-care information systems for the health insurance marketplace in the U.S. and abroad.

- The foundation of the alliance is AIH's TOPPS, an IBM-based multioption system that processes insurance claims for group health insurers, preferred-provider organizations, and health maintenance organizations.

Commercial/International:

EDS also provides a range of systems operations, systems integration, and professional services to domestic and international clients. Examples of recent contracts in EDS-defined vertical markets follow:

- *Communications:*

- During the first quarter of 1991, EDS concluded negotiations on a five-year general-services agreement with AT&T to supply AT&T with a range of information technology services, from consulting to systems development and processing.

- During 1991, EDS signed a systems management contract with Meredith Corporation.

- In late 1990, EDS won a contract to install and operate a new billing system for Advanced Telecommunications Corp, the nation's fourth largest publicly-held long-distance telecommunications provider.

- *Transportation:*

- In June 1991, EDS won a 10-year contract with Hospitality Franchise Systems, Inc. to support the marketing and reservation operations for Ramada and Howard Johnson hotels worldwide.

- In April 1991, EDS and Continental Airlines Holdings, Inc. signed 10-year systems management agreements valued at $2.1 billion. EDS will assume responsibility for all information technology services for Continental Airlines and System One.

  - EDS will also acquire Systems One's Airline Services Division, with its business base of more than 170 airline customers and 1,860 System One employees.

- During the first quarter of 1991, EDS signed a 10-year systems managmeent agreement with National Car Rental System, Inc. EDS will market services based on National's software to other vehicle rental and related companies.

- *Energy:*

- During 1990, EDS signed a 10-year systems management contract with Cyprus Minerals (Engelwood, CO).

- In May 1990, EDS signed a five-year functional FM agreement with Westar, a subsidiary of American Oil & Gas (AOG), whereby EDS will provide systems engineering services to install the Williams Gas Information System in EDS' Houston Information Processing Center (IPC), will operate the system, and will provide the data transmission services between the Houston IPC and the two major AOG locations in Houston and Amarillo.

- *Manufacturing:*

- In February 1991, EDS won a 10-year systems management contract valued at $100 million with Signetics Company of Sunnyvale (CA), a subsidiary of North American Philips Corporation.

- In early 1991, EDS was awarded a five-year systems integration contract with Del Monte Foods to upgrade Del Monte's computer hardware and customize packaged software in support of 30 manufacturing sites and distribution centers.

- During 1990, EDS signed a 10-year, $90 million contract with Cummins Cash and Information Services, Inc. (a Cummins Engine Company subsidiary). EDS will support the company's EFT, fuel purchase programs, and temporary truck permit services.

- In July 1991, EDS formed a marketing agreement with Consilium, Inc. for Consilium's WorkStream™ family of plant floor management software for the aerospace and defense industry in the U.S.

- *International:*

- EDS has renewed its contract with Telediffusion de France (TDF) to support TDF's administrative and management systems, customer training, and consulting services.

- During early 1991, EDS signed a three-year systems management contract with RJR-Macdonald, the Canadian subsidiary of RJR-Nabisco. EDS will provide operations management and processing, application development and maintenance, and network management.

- EDS also signed a five-year systems management contract with the Municipality of Metropolitan Toronto to install and support a dedicated computer system for Metro's data processing operation.

- In January 1991, EDS' Energy Division was awarded a five-year contract with Lagoven, the largest company in Venezuela, to help plan and develop information systems and provide consulting and training.

- In November 1990, EDS entered the Swedish market for the first time through a $300 million systems management contract with Saab Automobile AB.

- EDS also reached service agreements with Ficofrance, a French finance company; Midland Bank PLC; Chausson, the French autombile manufacturer; Bancomext and Citibank banks in Mexico; and Seguros Avia, a Venezuelan insurance company.

General Motors:

EDS' GM revenue comes from designing, installing, and operating GM information systems and implementing the automaker's large private digital telecommunications network.

- EDS has completed the implementation of the GM Service Parts Operations Consolidation System for the unit's entire operations.

- In February 1991, EDS was awarded a two-year contract to install the European Customer and Technical Service (ECATS) system at Adam Opel AG and CM Continental.

- In July 1991, EDS signed a six-year agreement with General Motors France (GMF) to provide systems management services to the European Chassis Technology Center at Villepinte.

- During the first quarter of 1990, EDS reached a five-year extension/renewal agreement with General Motors of Canada to continue to provide information technology and communications services.

- During 1989, EDS and GM announced plans for two systems for the parent company. The C4 Technology Program is designed to reduce the time and cost required for product development by enhancing and integrating the automaker's engineering and manufacturing technologies. The Product Description System, which was implemented across the Buick-Oldsmobile-Cadillac Group in 1989, is a common system for releasing and describing products for GM's vehicle groups.

- EDS has a long-term, fixed-price agreement with Chevrolet-Pontiac-GM of Canada to provide development, ongoing support, IPC operations, plant floor automation services, and communications support.

- EDS and Buick-Oldsmobile-Cadillac Group (B-O-C) finalized a five-year contract for EDS to provide computer, information processing, and communications services to B-O-C's 26 manufacturing plants and business locations.

- EDS continues to support all other areas of General Motors, including GMAC and staff and administrative functions.

Industry Markets

Approximately 53% ($3.23 billion) of EDS' total 1990 revenue was derived from its parent company, GM, and 1% was derived from interest and other sources. The remaining 46% ($2.79 billion) of total revenue was derived from clients in various industries, including banking and finance, insurance, manufacturing and distribution, retail, communication, transportation, and energy.

EDS' 1990 sources of revenue by industry market follows:

Manufacturing	41%
Financial	15%
Government	10%
Insurance	5%
International	18%
Other	11%
	100%

"Other" primarily includes wholesale/retail, energy, communications, and transportation.

Geographic Markets

Approximately 82% of EDS' total 1990 revenue was derived from North American operations. The remaining 18% was derived from international sources.

EDS has nearly 10,000 international employees and 850 locations worldwide.

INPUT estimates that EDS' $2.8 billion in U.S. noncaptive information services revenue was derived as follows:

Processing/network services	12%
Turnkey systems	2%
Systems integration	19%
Systems operations	56%
Professional services	11%
	100%

Computer Hardware

EDS currently operates 20 Information Processing Centers (IPCs) worldwide.

- EDS has multiple mainframes from various manufacturers--including IBM, Hitachi Data Systems, and Amdahl systems--installed at these centers.

- There are IPCs in Plano (TX). Other IPC locations include Sacramento (CA); Camp Hill (PA); Auburn Hills (MI); Charlotte (NC); Herndon (VA); and Paris.

EDS' Information Management Center (IMC) in Plano (TX) is a network command site responsible for managing EDS*NET, EDS' private digital network that will ultimately manage the telecommunications needs of EDS' Information Processing Centers.

- Through EDS*NET, over 730 million transactions are processed each month--nearly 17,000 transactions per minute.

COMPANY PROFILE

Electronic Data Systems (EDS)

1. Key SI Contacts:

Corporate Business Development
Gary J. Fernandes
Senior Vice President

Manufacturing, Warehousing and Distribution Segment
Paul Chiapparone
Senior Vice President
Hank Johnston
President, Manufacturing and Distribution Services Division

Federal Government Segment
G. Stuart Reeves
Senior Vice President

International and Global Industries Segment
Mal Gudis
Senior Vice President

2. Description of Principal Business

Electronic Data Systems (EDS) was originally founded in 1962 by Ross Perot to provide systems operations services to insurance companies, government-funded health insurance programs, and financial institutions. Today it provides systems operations, processing services, professional services, and systems integration services to nearly all vertical industries and to the federal government. In addition, EDS may act as a fiscal agent for a client, taking full responsibility for data processing as well as other administrative duties such as paying and processing insurance claims.

EDS is among the leaders in providing systems integration to the federal government and entered the commercial systems integration market in the early 1980s, gaining experience and a substantial lead in this area.

EDS was acquired by General Motors in 1984 and is operated as a wholly owned subsidiary. EDS provides virtually all information processing services to General Motors.

3. EDS Competitive Position

EDS is the largest systems operations and processing provider in the world and had worldwide 1989 revenues of $5.47 billion and net income of $435 million. Approximately 55% of EDS's revenues are from captive GM business and the remainder is from systems operations and other professional services for outside clients.

EDS has a strong set of information services capabilities and resources—including consulting, development, systems integration, and systems operations. Its operational data processing experience, including developing and operating large and small data centers, makes it a real "pro" in the efficient and cost-effective use of technology. Its systems operations experience with insurance companies and financial institutions provides it with applications knowledge of these industries. The assumption of all information systems responsibility for General Motors provides it with real business experience in the manufacturing, retail, distribution, and networking areas. And its alliance with GM Hughes provides it with aerospace industry knowledge.

The purchase by GM further adds to EDS's strengths. It provides huge financial resources to support bids, on the largest opportunities and the buying power of one of the nations largest corporations. This buying power will provide it with other vendors' products at the lowest possible price and will result in very competitive pricing.

4. Markets Served

EDS recently restructured its organization and has organizations that focus on virtually all vertical markets. Its historical focus has primarily been the following vertical markets:

- Federal government
- State and local governments
- Banking and finance
- Insurance
- Manufacturing

While EDS's expertise is aimed primarily at vertical industries, the company has targeted two key cross-industry markets: engineering and networking—both areas where the company has gained a great deal of experience through its work at GM.

To become a major systems integrator, EDS has targeted the federal government, discrete and process manufacturing, aerospace, and retail distribution vertical markets. It is also making a major thrust at expanding this capability into the international market. (See Exhibit EDS-1). Under it new organizational structure, EDS will focus on all vertical markets.

EDS's 1989 revenues, including captive GM revenues, were distributed as shown in Exhibit EDS-2.

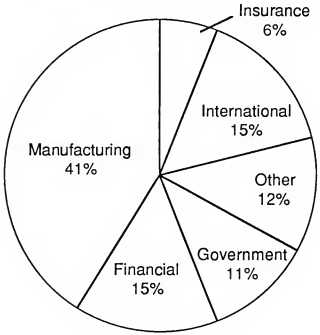
EXHIBIT EDS-1

SI Vertical Market Focus—EDS

- Federal Government
- Discrete Manufacturing
- Process Manufacturing
- Retail and Distribution
- Aerospace

EXHIBIT EDS-2

Revenue by Market Sector



1989
$5,466.8 million

5. Recent Events

In November 1987, EDS entered an agreement with Tandem Computers to jointly develop and market products and services to help manufacturers connect and integrate multivendor business, engineering, and factory control systems.

During 1987 EDS began negotiations to acquire MTech and the servicing responsibilities for the third-largest ATM (automated teller machine) network in the U.S. The acquisition was completed in 1988. In 1987 EDS also acquired M&SD Corp, a supplier of telecommunications services and equipment.

In 1987 Perot sold his interests in GM-EDS and resigned from the GM Board of Directors because of fundamental differences he had with GM's management style and system. At that time Perot agreed that he would not compete with EDS for profit for a three-year period. During 1988 Ross Perot formed a new firm, Perot Systems, focused on systems integration and a direct competitor to EDS.

In March 1989, EDS entered into negotiations to purchase 20% ownership of National Advanced Systems (NAS), the other 80% to be held by the Japanese computer manufacturer, Hitachi. This investment in the company now called Hitachi, USA provides EDS with a low-cost source of computer hardware and additional leverage to gain favorable discounts from other equipment vendors.

In early 1990, EDS entered into a potential multibillion-dollar, 10-year accord with Texas Air Corporation. EDS is investing $250 million in the airline's System One computerized reservation subsidiary for 50% ownership. Included is EDS's management of four data centers and control of 2,200 Texas Air employees.

Recent developments are summaried in Exhibit EDS-3.

EXHIBIT EDS-3

Recent Major Developments

- Tandem CIM alliance
- MTech and M&SD acquisitions
- HDS minority ownership position
- Texas Air accord

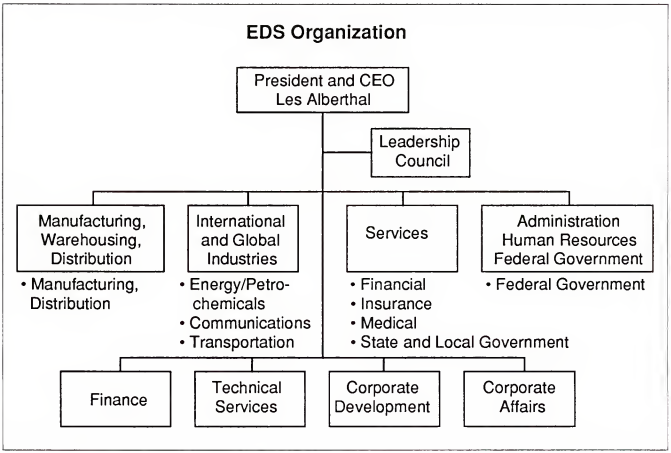
6. EDS Organization

In late 1989, EDS announced major changes to its organization. Eight of its senior executives were given oversight for eight major business segments and were also assigned to the new Leadership Council. The Council has been established to provide a high-level focus on strategic planning.

The reorganization also establishes a large number of business units (well over fifty), most with divisional status, with responsibility for specific market opportunities. Most of these organizations have a specific vertical industry market focus. Similar to its major competitors, EDS has recognized the importance of building solutions for each type of customer.

Exhibit EDS-4 depicts the new EDS organization and the eight major business segments. Vertical industry market responsibilities are also identified.

EXHIBIT EDS-4



In interviews with INPUT, EDS stated that it is in the systems management business and systems integration is an essential component of that business. It also stated that most of its employees have operational experience that can be applied to SI. INPUT's estimates of EDS's 1989 SI revenues are shown in Exhibit EDS-5.

EXHIBIT EDS-5

EDS Systems Integration Revenues, 1989

Business Component	$ Millions
Federal	350
Commercial	150
Total	500

EDS has 60,000 employees worldwide. As mentioned above, many of these employees have skills and knowledge that can be applied to SI. INPUT has not attempted to estimate the number of personnel assigned to SI, although they are distributed among the various functional disciplines as shown in Exhibit EDS-6.

EXHIBIT EDS-6

Distribution of SI Personnel EDS

Capability	Percent	
	Commercial	Federal
Management, strategy, planning	3	1
Legal/contract administration	1	1
Project management	10	5
System development/ implementation	75	78
Hardware/software evaluation/ acquisition	10	10
Hardware engineering	0	0
Sales	2	5

When interviewed, the EDS organizations that address most SI opportunities responded quite differently as to how they were organized to execute and manage SI contracts. This is illustrated in Exhibit EDS-7.

EXHIBIT EDS-7

Centralization/Decentralization of SI Business Functions Electronic Data Systems

Responsibilities	Commercial	Federal
Strategy and long-range planning	B	D
Marketing and promotion	C	D
Account management/ sales	C	D
Contract review/approval	C	D
Project management/ control	B	D
Implementation/development	B	D
Hardware/software acquisition	C	C
Systems operations	C	C

C = Centralized, D = Decentralized, B = Both

The Government Systems Group operates in a decentralized mode, with the exception of hardware and software acquisition and systems operations, which are controlled centrally. The commercial organizations have been more centrally controlled, with all activities except strategy and long-range planning, project management and control, and implementation and development controlled from Dallas. These three responsibilities were shared by Dallas and decentralized locations. INPUT believes that the major reason for the differences in these responses has been a result of the different customer requirements and the commercial organizations' proximity to EDS corporate headquarters.

As EDS's new organization unfolds, with its focus on more autonomy and delegation of decision authority, INPUT anticipates that commercial organization will become much more decentralized.

7. SI Objectives and Revenues

EDS's business objectives are identified in Exhibit EDS-8. Management has set a goal of reducing its dependence on GM business to 50% by 1990. It is attempting to accomplish this by holding GM-derived revenues level, while continuing to increase traditional non-GM revenues by around 30%.

EXHIBIT EDS-8

EDS Business Objectives

- 50% of business from non-GM sources by 1990
- 80% renewal rate
- SI as a source of systems operations contracts
- Control of existing customer base
- Profitable SI business

EDS also has a business objective of maintaining a client renewal rate in excess of 80%. It is offering systems integration in response to its customers' demands, and recognizes it as a vehicle to attract new systems operations candidates and to maintain control over its existing customer base.

Finally, the company is looking to the SI business to earn a profit.

8. Internal SI Capabilities Evaluation

- Business Consulting—EDS has good consulting experience in the area of developing large projects. It has very good technical consulting capability based on its extensive systems operations experience. Vertical-industry business consulting capability should be particularly strong in its base businesses—process and discrete manufacturing, retail and distribution, aerospace, and networking—all areas of SI concentration. EDS' new organization should improve its knowledge of additional vertical industry markets.

- Design Methodology, Design and Integration, Project Management, Software Development, Education, Training, and Documentation—Based on the experience it has gained both in its basic systems operations business and at GM, EDS is very capable in all of these areas.

- Packaged Application Software—EDS has developed and acquired a number of vertical market packages that it uses in its traditional business. Examples are The Insurance Machine™ for the insurance industry and Flagship™ for credit unions. It is not clear what role these products may play in SI-only, non-facilities-management projects. EDS indicated in its survey response that it would prefer to use all off-the-shelf products.

- Packaged Systems Software—The company prefers to use off-the-shelf products provided by other vendors.

- Standard Computer Hardware—EDS uses standard off-the-shelf hardware provided by other computer manufacturers. EDS will most likely incorporate more Hitachi/NAS products in its bids.

- Custom Computer Hardware—EDS's commercial systems integration organization indicates that it has some custom hardware capability, but it would clearly prefer to use off-the-shelf hardware.

- Network Management and Operations—EDS has extensive experience in developing and managing GM networks and its own network that supports its processing services capability. Today it operates one of, if not the largest, networks in the world.

- Service and Repair—EDS has moderate capability in hardware service and repair.

- Software Maintenance—The company has adequate software maintenance capability.

9. SI Strategic Alliances

EDS has a formal alliance program that generally operates on a contract-by-contract basis. Alliances exist with computer hardware manufacturers, other GM organizations, customers, applications software providers, and non-U.S. partners. Examples of these alliances are shown in Exhibit EDS-9.

Equipment alliances have been established with leading vendors, including IBM, AT&T, Tandem, DEC, Sun, and Apple. The Tandem alliance includes a strong focus on the manufacturing industry. EDS's alliance with GM Hughes is focused on factory automation and telecommunications applications that require satellite-based products and services.

EXHIBIT EDS-9

EDS—Strategic Alliances

Equipment	Digital Equipment IBM AT&T Apple Tandem Sun
Systems software	Ameritech
CIM/satellite products and services	GM Hughes Electronics
International SI	Lucky-Goldstar Telefonica
Large retail bank processing systems	Norwest Corporation Banc One Corporation
Airline reservation systems	Texas Air

Customer partnerships such as the EDS, Banc One Corporation & Norwest Corporation alliance are used to develop application offerings in areas where EDS lacks applications skills.

Software alliances, though small in number, have provided solid gains for EDS in the telecommunications market.

EDS has established a number of international alliances. In February 1987, it established a 50-50 joint venture with the Lucky-Goldstar Group, called System Technology Management (STM), to provide systems integration, data processing, and communications services to the Group's 20 affiliated firms and other Korean companies.

In September 1987, EDS Communications Corp. and Telefonica (Spain's national telephone, postal, and telecommunications organization) established a joint-venture company to develop, market, sell, and install packet data networks worldwide using Telefonica's packet-switching system.

10. SI Capabilities Summary

EDS has a very strong set of capabilities and few weaknesses in the SI arena (See Exhibit EDS-10). It has outstanding information systems operating knowledge in the services industries based on its experience in running data processing installations for a great number of clients in the banking, financial, and insurance industries. It has similar experience with federal and state and local government customers.

EXHIBIT EDS-10

EDS' Competitive Status

Strengths	Weaknesses
Operational experience	Systems operations/ processing mentality
Vertical industry knowledge	Limited sales office network
Large experienced skill base	
Understands new technologies	
Alliances	

Based on more recent experience with General Motors, EDS has developed operating experience in virtually all areas of a large manufacturing company, from CIM applications to the consolidation and installation of a worldwide communications network.

These actual operating experiences make EDS uniquely qualified to develop and operate total information solutions. They also provide EDS with a very large and experienced skill base that can address a very broad range of industry applications.

EDS lacks hardware and software products (with the exception of its ownership position in Hitachi, USA), preferring to obtain other vendors' off-the-shelf products through its strong set of alliances. INPUT does not consider this a weakness because of EDS' strong financial resources and buying power.

EDS has a solid understanding of new technologies and integration techniques based on its experience in running 20 or more very large internal data centers and well over 100 customer premises data centers.

INPUT does not believe that EDS has significant weaknesses. However, its traditional systems operation focus will most likely limit its competitiveness in some systems integration opportunities. Some prospects that are committed to running their own data processing operations will be reluctant to ignore EDS's traditional motivations when an SI solution is proposed. This is justified, since it appears to INPUT that in most cases systems operations is the underlying motivation for EDS's SI activities.

EDS does not have an extensive sales office network, which may prove to be a disadvantage, as it competes with hardware manufacturers that have near-site sales personnel.

11. SI Marketing Strategy

Exhibit EDS-11 identifies the key elements in EDS's marketing strategy. The company promotes itself as a systems management firm. It wants to provide total service—from developing an integrated solution, through systems integration, to total systems operations—for the customer.

EXHIBIT EDS-11

EDS SI Marketing Strategy

- Complete service provider
- Leverage GM experience and resources
- Broad market coverage
- Build on vertical industry experience
- Reference sell

INPUT believes EDS will leverage its GM-based buying power with hardware and software vendors and partners (e.g., Hitachi, U.S.A.), as well as the vertical-industry application knowledge it has developed at GM and while operating other installations in other industries.

Finally, a key element of EDS's strategy is to use references from successful systems integration and systems operations contracts to help sell to new clients. The company will use its own data center processing centers to demonstrate its capabilities and will use satisfied customers as references.

In addition, EDS's new organization is focused on broadening its market coverage by establishing organizations responsible for solutions and growth in all vertical markets.

12. SI Customer Base

EDS has a broad range of systems operations customers. In many cases the first stage of these contracts requires EDS to develop a total integrated system solution. The majority of its revenue, however, comes from follow-on systems operations activities. The following table, Exhibit EDS-12, identifies representative customers where INPUT believes systems integration is an element of the total systems operation offering. Contract values are not provided, since INPUT believes that the systems operation content would make these values misleading.

EXHIBIT EDS-12

Examples Of EDS's Customers and Contracts

Company/Industry	Project Description
Champion Sparkplug	Computer-integrated manufacturing
Caterpillar Tractor	Plant automation
Enron Corporation	Companywide systems management
State of Massachusetts	Welfare eligibility
U.S. Army - Project 80X	Personnel management
U.S. Navy - Spar	Global retail inventory and supply system
State of Florida	On-line Human Services delivery system
Bank One	Integrated large commercial banking system

13. Summary and Future Directions

EDS's broad range of operational experiences make it a very capable competitor in the SI arena. These strengths include:

- Vertical-industry knowledge of its traditional client base as well as GM-based discrete and process manufacturing, distribution, and aerospace experience
- Operational project development and technology transition management skills, based on actually running GM and EDS data centers and communications networks. This includes the capability to manage very large projects.
- A large, satisfied customer base
- Experience, financial resources, and product-buying leverage provided by its parent, General Motors. This insures its ability to bid very large projects at very competitive prices.
- A focus on total systems management that allows EDS to spread the initial systems integration risk over a longer time period and revenue stream

This last strength, a preoccupation with providing total systems management, may also turn out to be EDS' one major weakness. As a weakness it can:

- Lower EDS's priority on bidding on SI-only projects
- Preclude EDS from serious consideration by the SI customer that wants an integrated solution only, not a systems management contract

INPUT believes that EDS will move even more toward the total systems management concept, deriving its revenues not only from the front-end SI work, but also the follow-on systems operations contracts. The company will be extremely successful in systems management contracts, but less interested and less successful in standalone SI contracts.

COMPANY PROFILE

Electronic Data Systems (EDS)

1. Key Systems Operations Contacts

The systems operations activities at Electronic Data Systems (EDS) are under the direct supervision of Jeff Heller, Senior Vice President. He is located at:

7171 Forest Lane
Dallas, Texas 75230

2. Description of Principal Business

Electronic Data Systems Corporation, founded in 1962, is a leading information and communications services company providing information processing, consulting, systems management, systems integration, and communications services to the financial, insurance, commercial, and communications industries domestically and internationally, and to state and federal government. These markets include banking; credit unions; property, life, health, and casualty insurance; distribution; manufacturing; transportation; retail; and energy.

- EDS currently has more than 60,000 employees and more than 7,000 clients in all 50 states and in 27 other countries worldwide.

- EDS' largest clients are General Motors Corporation (GM) and its subsidiaries, which contributed approximately 55% ($3.0 billion) to EDS' 1989 revenue.

3. Systems Operations Service Characteristics and Capabilities

The company currently operates 21 Information Processing Centers (IPCs) worldwide. The systems operations for many of its SO customers are conducted at these centers in a multiple-client environment. These IPCs are interlinked via network. The processing load can be shifted from one center to another as the need arises.

There are 122 other data centers operated and owned by EDS throughout the world, serving single clients. In addition, EDS operates other data centers that are owned by the client.

Most of its contracts are for a minimum of three to five years, but the terms and conditions vary considerably from industry to industry and cannot be categorized into convenient groupings, such as fixed price or cost plus fixed fee.

EDS has the internal capabilities to provide all the required systems operations services to its clients, ranging from business consulting to equipment maintenance, but still chooses to use alliances to supplement its own resources in many instances. Typical alliance partners will be further identified in Section 8 below.

The company identifies two proprietary products that it believes gives it a competitive edge over its competitors. These are:

- Total Plan - This system is a fully integrated Health Insurance Administration processing package that increases its clients' productivity and decreases unnecessary benefit payments.

- C4 Technology Program - This system of programs is designed to standardize, enhance and integrate CAD, CAE, CAM and CIM capabilities for the product engineering and design tasks in the client base.

4. Markets Served

EDS cannot split out of its customer base of 7,000 those for whom it is performing systems operations functions exclusively. The demographics of the customer base are as follows:

- 6,938 commercial clients
- 40 state and local government operations
- 12 federal government agencies

EDS is a supplier to a broad range of industries in the commercial market. EDS provides systems operations services to federal, state and local government customers. Recent contract examples include the following:

- In August 1990, EDS won a five-year contract to provide life cycle management services of Standard Army Management Information Systems for the Army's Information Systems Software Center at Fort Belvoir (VA). Maximum contract value is approximately $116 million.

- In March 1990, EDS was awarded a seven-year, $45 million contract with the U.S. Small Business Administration (SBA) to operate the SBA's Washington data center, which supports 1,700 terminals at SBA offices around the country.

- EDS currently processes more than two-thirds of all Medicaid claims submitted in the U.S. Medicaid contract awards including the following:

- During the first quarter of 1990, under a five-year competitive recompete contract with Kansas SRS, EDS will provide fiscal agent services and expand medical review, recipient assistance, provider relations, and enrollment services.

- In November 1989, EDS signed an eight-year, $16.5 million contract with Delaware's Department of Health and Social Services to operate the state's Medicaid Management Information System.

EDS offers financial institutions technology-based business solutions through systems integration, systems operations, and service bureau operations. Products and services include data processing, communications, information management, back-office, bank card, and payment services. The company currently serves more than 6,000 banks, credit unions, and savings institutions worldwide.

EDS provides FM, processing services and turnkey systems to commercial insurance companies and Blue Cross/Blue Shield organizations.

- During 1989, EDS processed over 391 million life, health, and casualty insurance claims.

- In March 1990, EDS and American International Healthcare, Inc. (AIH), a subsidiary of American International Group, announced plans to jointly develop and market managed-care information systems for the health insurance marketplace in the U.S. and abroad.

EDS also provides a range of systems operations and professional services to domestic and international clients. EDS was one of the world's first commercial systems operations specialists and has emerged as a major force in both government and commercial markets.

- Examples of recent domestic commercial contracts obtained by EDS include the following:

  - In August 1990, EDS was awarded a ten-year contract with the Permian Corporation to manage Permian's information technology in support of the energy company's oil and gas distribution operations.

  - In April 1990, EDS signed a ten-year contract with Westmoreland Coal Company to assume responsiblity for all of Westmoreland's processing and communications operations.

5. Competitive Position

The company has been active in the commercial systems operations arena for 28 years and in the federal government arena for 23 years. In the early years, the process was known either as facilities management or operations management, but it is essentially the same set of activities that is now known as systems operations.

Approximately 55% of EDS' total 1989 revenue was derived from its parent company, GM, and 2% was derived from interest and other sources. The remaining 43% ($2.38 billion) of total revenue was derived from clients in various industries, including banking and finance, insurance, manufacturing, retail, distribution, transportation, and energy.

EDS' 1989 source of revenue by industry market (including captive GM revenues) follows:

Manufacturing	41%
Financial	15%
Government	11%
Insurance	6%
International	16%
Other	11%

Corporate management at EDS recognizes the following primary competitors in its major markets. A different set is dominant in each sector, though some are common to both sectors. Exhibit EDS-1 identifies them for each sector.

EDS-1

Major Competitors in Each Market Sector

Commercial	Federal
IBM	IBM
CSC	CSC
Andersen Consulting	Boeing
Perot Systems	PRC, Inc.
Systematics	Unisys

6. Recent Events

Recent acquisitions and joint ventures concluded by EDS include the following:

- In September 1990, EDS joined with Hewlett-Packard to finance the purchase of Ingres Corp., a relational data base supplier, by ASK Computing, a manufacturing software developer. In return for $40 million, EDS will get a 20% stake in ASK and access to a strong base of manufacturing and data base technologies.

- In March 1990, EDS purchased a 25% equity interest in Thomas Group, Inc (TGI) and jointly will market TGI's Accelerated Business Competitive (ABC) programs through EDS' Manufacturing and Distribution Strategic Business Unit.

- In January 1990, EDS acquired a 30% interest in Infocel, Inc., a Raleigh, NC-based provider of software products for local governments, education, and public safety.

- In May 1989, EDS and Hitachi, Ltd. announced the completion of their acquisition of National Advanced Systems Corporation (NAS) from National Semiconductor Corporation. EDS and Hitachi have formed a new, independently operated, joint venture company, Hitachi Data Systems Corp., which will market and distribute Hitachi PCM mainframe and peripheral equipment. EDS holds a 20% equity in the new venture.

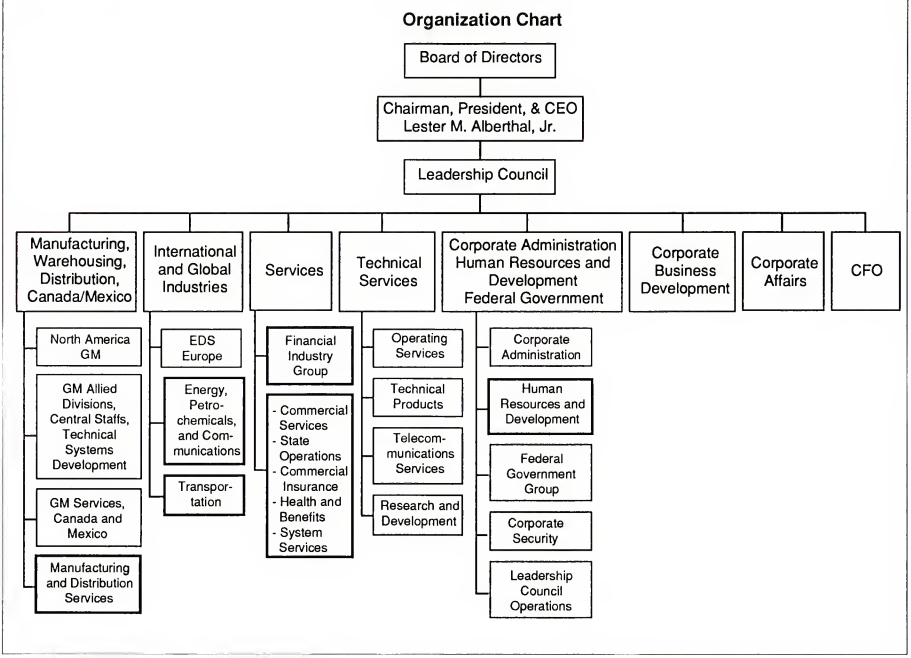
- In April 1989, EDS acquired BancSystems Association, Inc., (Westlake, OH), a subsidiary of Society Corporation that provides credit card transaction processing services to the financial services industry. Terms of the purchase were not disclosed.

BancSystems provides MasterCard and Visa credit and debit processing and related services to more than 180 financial institutions in Ohio and seven other states, with more than 2.4 million cardholders and 38,000 merchants. The company had approximately 300 employees at the time of the acquisition.

- In April 1989, EDS acquired the EFS electronic funds transfer (EFT) business of Automatic Data Processing, Inc. (ADP). Terms of the acquisition were not disclosed.

ADP's EFT business includes a range of services for automatic teller machines and point-of-sale applications for the banking industry and The Exchange, ADP's EFT network.

Headquartered in Clifton (NJ), ADP's EFT operations employ nearly 300 people and supply one of the largest networks in the industry.



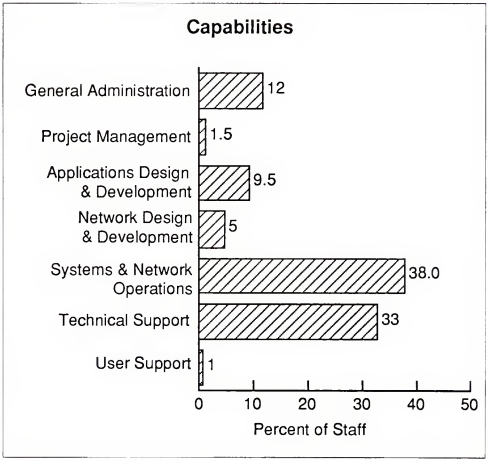
- In March 1989, EDS and Hewlett-Packard signed an agreement that formally establishes the framework for cooperation on systems integration projects. Under the terms of the agreement, HP and EDS will submit joint proposals to customers for the development, design, management, and support of projects requiring the integration of hardware, software, and project management services.

7. Organization

The corporate organization chart is presented in Exhibit EDS-2. Highlighted sections represent operating units that have systems operations activities in the United States. The units with responsibilities for GM business are not highlighted.

EDS has reported that more than 16,000 of its employees are engaged in systems operations activities. Of this total, 96.8% are servicing commercial accounts while the remaining 3.2% work on federal government contracts. Exhibit EDS-3 illustrates how those staff capabilities are distributed.

EDS-3



8. Systems Operations Alliances

EDS has a strong, active alliance program for its systems operations business. EDS states that through a variety of partnership agreements, it is able to provide customers with greater value through enhanced technological and industry knowledge, resources, products and services. Joint development allows EDS to serve as a major influence in the development of vendor hardware and software. These strategic alliances enable EDS to draw on the strength and expertise of other companies and offer a wider range of services and products to meet customer needs.

The company has in place more than 5,000 vendor contracts with support organizations. Typical of these partnerships are the following:

- ASK Computing, Banc One and Norwest will do custom application design and development work for EDS SO clients in their respective fields of manufacturing control, banking and finance, and transportation.

- Earth Observation Satellite Company and Infocel provide their proprietary software to clients through EDS when these specialized products are required.

- Diebold is a provider of maintenance for ATM equipment for banking customers for which EDS does systems operations.

9. Systems Operations Marketing Strategy

EDS expects to continue to grow significantly in the systems operations market, both by expanding penetration in current markets and by entering new markets. In the latter case, the selection criteria to identify new markets will include the size of companies in that sector, the changes occurring in that sector and how they will influence the receptivity of prospects to systems operations. In addition, the market sector will have to include enough viable prospects to make entry a profitable venture for the company.

Currently, EDS gets about 80% of its revenue from its existing client bases in the commercial and federal government sectors. The rest of the revenue is generated by new accounts. In the case of new commercial business, half is directly solicited and half is obtained through the recommendations of consultants.

Exhibit EDS-4 shows how EDS obtains new business in the two major market sectors. Note that most of the business in the federal government sector is acquired by responding to formal bid solicitations or RFPs, while less than 15% of the commercial contracts are obtained that way. Note also that proactive sales efforts result in about one-third of the new business in the commercial sector, but this avenue is severely restricted in the federal sector because of the competitive bid solicitation system.

EDS-4

Sources of New Business

	Percent	
	Commercial	Federal
Responding to solicitations	12	75
New contracts with existing clients	45	20
Proactive direct sales	33	5
Other	10	

EDS has a 28-year history of success in facilities management to establish its credibility in the systems operations industry. It uses this background as well as its known telecommunications expertise to establish its reputation relative to its competitors. It owns the largest privately owned network in the country, which links its 21 Information Processing Centers.

It positions itself as uniquely qualified to provide any of the resources that a particular SO opportunity may require. It has also pioneered the acquisition of client data centers and operations staff to ease the transition to external systems operations environments and provide an additional financial incentive for the move.

10. Systems Operations Customer Base

EDS has 7,000 customers worldwide. Management cannot identify specifically which of these are exclusively systems operations clients. Five typical major systems operations clients give a good indication of the range of EDS' contracts, however:

- Shell Brazil - EDS operates and manages two VAX computer centers and two communications command centers.

- U. S. Army - EDS provides systems development, conversion and maintenance resources for Standard Army Management Information Systems.

- Security Connecticut Life - EDS manages the data center operations and communications, including business analysis, systems maintenance and development, programming and design, and project management.

- First Fidelity Bancorporation - EDS will convert a number of applications systems into a unified, companywide single platform and manage the resultant data center.

- Western Union - EDS will execute a 10-year facilities management contract to provide processing and systems engineering support for the Business Applications Systems division.

11. Summary and Future Directions

EDS, the pioneer in facilities management, has broadened its services and is the clear leader in the commercial systems operations business. Its size, experience, and financial resources will continue to make it a very aggressive and capable competitor in this market.

Its broad vertical market focus and extensive early experience has recently been supplemented with an aggressive acquisition policy in which it has obtained not only major processing contracts, but also much expertise in such fields as title insurance and airline reservation systems.

TECHNOLOGY SOLUTIONS COMPANY (TSC)
205 North Michigan Avenue
Chicago, IL 60601
(312) 819-2250

Albert D. Beedie, Jr., President and CEO
Public Corporation, NASDAQ
Total Employees: 325 (5/91)
Total Revenue, Fiscal Year End 5/31/91: $52,439,000

The Company

Technology Solutions Company (TSC) provides systems integration and professional services to Fortune 1000 clients. TSC currently serves three industry areas: consumer products, manufacturing (including aerospace and defense contractors), and financial services.

- TSC was formed in May 1988 by A.D. Beedie and other former Arthur Young executives to provide consulting services to major corporations.
- In August 1989, TA Associates, a Boston-based $500 million venture capital firm, purchased approximately 10% of TSC's stock from certain shareholders for $6 million.
- In February 1990, TSC formed its Financial Services industry practice when key personnel of Leveraged Software Systems, Ltd., a small systems consulting and implementation firm concentrating in the financial services industry, joined TSC.
- In September 1991, TSC made an initial public offering of approximately 3.6 million shares of common stock, of which 2.9 million were offered in the U.S. and 0.7 million were offered internationally. About one-half of the shares are being sold by the company and the remainder by selling shareholders. Estimated net proceeds to the company of $21.1 million will be used for general corporate purposes.

TSC's fiscal 1991 revenue reached $52.4 million, a 20% increase over fiscal 1990 revenue of $43.9 million. Net income increased 98%, from $4.3 million in fiscal 1991 to $8.5 million in fiscal 1991. A three-year financial summary follows:

TSC
THREE-YEAR FINANCIAL SUMMARY
($ thousands, except per share data)

	FISCAL YEAR		
ITEM	5/91	5/90	5/89
Revenue	$52,439	$43,869	$14,766
. Percent increase from previous year	20%	197%	*
Income before taxes	$13,817	$7,428	$1,479
. Percent increase from previous year	86%	402%	*
Net income	$8,469	$4,275	$854
. Percent increase from previous year	98%	401%	*
Earnings per share	$0.82	$0.41	$0.07
. Percent increase from previous year	100%	486%	*

* *Not meaningful*

TSC management attributes revenue increases to an increase in the number of major projects performed. During fiscal 1991, revenues were also bolstered by an increase in average hourly billing rates (which was due to across-the-board increases in TSC's billing rates), staffing projects with more-senior personnel, and smaller discounts from standard billing rates.

- During fiscal 1991, 41 major client contracts (those representing revenues in excess of $100,000 each) accounted for 98% of total revenues for fiscal 1991, compared to 29 major contracts accounting for 98% of total revenues for fiscal 1990.

- During fiscal 1991, TSC had 15 contracts that provided revenues in excess of $1 million each, compared with ten such contracts during fiscal 1990.

As of May 31, 1991, TSC had 325 employees, segmented as follows:

Vice Presidents	27
Principals	112
Senior Consultants	91
Consultants	67
Staff	28
	325

TSC's major competitor is Andersen Consulting.

Key Products and Services

Approximately 90% of TSC's fiscal 1991 revenue was derived from systems integration services, 7% from professional services, and 3% from software and hardware products.

TSC provides systems integration and various professional services, including systems consulting, feasibility and cost-effectiveness studies, training, testing and maintenance, custom software development and implementation, and project management.

- TSC generally bills for project work on a time-and-materials basis.

- To date, the major systems projects that TSC has completed have ranged in length from four months to over two years and have produced revenues ranging from $100,000 to $23 million. Projects have averaged slightly less than one year in duration and produced, on average, approximately $2.6 million in gross revenues.

- Since its inception in May 1988, TSC has performed systems work for over 50 major corporations.

TSC's services are performed in three industry-specific practice areas, as follows:

Consumer Products: Clients in this practice area include manufacturers of consumer goods, distributors and dealer networks, retailers, and direct marketers.

- TSC has also developed Direct 2000, an integrated direct marketing system, for Shaklee Corporation, a large direct-mail marketer. TSC has exclusive marketing rights to the software in North America and Europe and is actively marketing the system.

Manufacturing: TSC performs systems consulting and implementation work for manufacturers, remanufacturers, distributors, and transportation and logistics companies.

- TSC often modifies and/or combines manufacturing software packages and integrates enhanced software with existing systems.

- The company has experience and industry and application knowledge in manufacturing systems work, including integration of diverse MRP and MRPII software, design and implementation

of custom systems, computer-integrated manufacturing, and imaging.

- TSC has won major contracts to enhance or implement previously licensed C-POIS MRPII applications. C-POIS was acquired by Andersen Consulting in 1989.

- IBM has selected TSC as one of its preferred integrators for COPICS and for its MTO/DOD and CEM enhancements for Department of Defense contractors.

- TSC has also developed several software packages that provide added functionality to MRPII software and enhance TSC's systems development capabilities, including:

  - PCHS, parts cost history data base

  - TPOP, time-phased order point

  - MARS, material attribution reporting system

  - FOCUS, forecasting algorithms

- TSC's "View" imaging software provides for the display of document images, including engineering drawings. The software can be used on both IBM and compatible PCs, and UNIX workstations. Pricing ranges from $650 per copy to $75,000 for a site license.

Financial Services: Clients in this segment have included retail and institutional brokerage firms, commercial banks, and investment and merchant banks.

- TSC has expertise in real-time global trading; corporate capital allocation and risk management; operational workflow re-engineering; financial and management reporting and accounting; trading, financial, and economic analysis; and commercial and investment banking.

- TSC is developing a customizable software product called SUITE (System to Unify Information and Technology Environments) as an outgrowth of work that it has performed for certain of its clients. SUITE is designed to assist clients to bring together disparate software, hardware, and telecommunications technologies.

A summary of selected TSC projects, by industry practice area, is shown in the exhibit.

EXHIBIT

TSC PROJECT EXAMPLES

CLIENT	PROJECT DESCRIPTION
Consumer Products	
Allied Van Lines, Inc.	Agent and corporate transportation systems
American International Group, Inc.	Marketing, administration, and claims systems
Bridgestone/Firestone, Inc.	Point-of-sale/management system
Dow Chemical Company	Rail fleet management network
Encyclopedia Britannica	Order-processing and fulfillment systems
Information Resources, Inc.	Executive information system, revenue tracking and accounts receivable system, cost-profitability analysis
Michigan Bulb Company	Order entry/processing/fulfillment system
Northern Indiana Public Service Co.	Customer information system
Prime Computer	Revenue cycle system
Whirlpool	Customer service system
Manufacturing	
The Boeing Company	IDEF education and training
CanCar Works	MRPII implementation
Emerson Electric Co.	MRPII implementation
General Electric Aerospace Group	MRPII implementation, material cost-estimating system
LTV Aerospace & Defense Co.	Software selection consulting
McDonnell Douglas Missiles Systems	MRPII education and training
Northrop Aircraft Division	Manufacturing and financial sofware engineering
Unisys Corporation	Strategic planning, marketing, and sales support consulting
Westinghouse Electronics Systems	Imaging system
Wilcox Electronics, Inc.	MRPII implementation
Xerox Corporation	Imaging architecture consulting
Financial Services	
Bankers Trust New York Corp.	Financial and management reporting system
Brinson Partners, Inc.	Strategic systems assessment
Continental Bank Corporation	Foreign exchange system
Fidelity Investments	Principal trading system for fixed-income securities
First Bank System, Inc.	Asset-based lending systems
First National Bank of Chicago	Trade finance, EDI, and credit management reporting systems
PaineWebber Group, Inc.	Fixed-income middle-office system

Industry Markets

TSC's fiscal 1991 revenue was derived approximately as follows:

Consumer products	47%
Manufacturing	45%
Financial services	8%
	100%

- For fiscal 1991, approximately 81% of TSC's manufacturing segment revenue was derived from clients in the aerospace and defense industry.

Major clients include Bridgestone/Firestone, Fidelity Investments, First National Bank of Chicago, General Electric Company, IBM, Northrop Corporation, Prime Computer, Westinghouse, and Whirlpool.

Geographic Markets

Approximately 98% of TSC's fiscal 1991 revenue was derived from the U.S. and 2% from international sources.

In addition to its headquarters in Chicago, TSC has offices in the Dallas, New York, and San Francisco metropolitan areas.